

COAL AGE

The Only National Paper Devoted to Coal Mining and Coal Marketing

C. E. LESHER AND R. DAWSON HALL, Editors.

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Omens of Summer

DISCUSSION in the trade has veered from prospects of regulation to prospects for business. Nothing is doing in coal—no orders, mines idle—yet production of soft coal is better than 7,000,000 net tons per week and hard coal is crowding past high records. Somebody is buying coal—that 7,000,000 tons a week is not being dumped by the roadside. A business that is producing each week 55 per cent of the highest single week of its history and nearly 70 per cent of the average for 1920 is not dead by any manner of means. It has much for which to be thankful.

Everyone is theorizing and prophesying, and though we are inclined to dodge both because both are somewhat in disrepute with the practical man, the weather is hot and our venture here will be lazily read and soon forgotten. It is, of course, essential to resort to statistics; everyone does and they are hardy. Production of bituminous coal is behind schedule, as measured by the performance of recent years; in fact, we must go back to 1914 and 1915 to find as poor a showing for the first six months. With but 196,000,000 tons in the first six months of this year we find 205,000,000 tons in the same period of 1914 and 193,000,000 tons in 1915. Compared with these figures are 226,000,000 in 1913, 214,000,000 in 1919 (a poor year in the early months) and 258,000,000 tons last year. All of which means that if we do not pick up speed, some 400,000,000 tons will be the year's total, than which the country has used more every year since 1909.

It does not seem possible that the country has backslid so far, that the United States is in such a comatose condition that the showers of another spring are needed to revive it. Most people prefer not to so believe. On every hand we are told by eminent authorities that the country has "turned the corner," "business is again on the upgrade," "liquidation has practically been completed." Because before long the railroads are to have \$500,000,000 to spend (or pay their debts) some say orders for steel and hence orders for coal will blossom out in August. Others point to the seasonal fall and winter demand for coal as an inevitable harbinger of better prices, and in the meantime twiddle their thumbs.

Some consumers are loading up their storage piles with coal that some producers are selling them at less than cost of production, other consumers are burning up last year's high-priced coal pile and playing a waiting game for lower-cost coal this year, which assuredly will not come unless union miners' wages come down. The country over, stocks of coal, both soft and hard, are not less than three months ago, and in some sections, particularly New England and the Northwest, the stocks are greater by considerable than earlier this year or than at this time last year. In view of this can there be a coal shortage?—and fancy prices? By defining shortage as a condition under which the con-

sumer demands more coal than the railroads can currently transport and the evidence of a shortage the offering by the consumer of prices well above that for which the shipper is now willing to sell coal, we find that there can—and will—be a shortage of bituminous coal if and when business revives sufficiently to call forth an output greater than 10,000,000 tons a week.

It does not appear that the months of July and August will bring the total output for the calendar year to more than 270,000,000 tons. Prophets are all stuck when it comes to guessing what will be required to round out the year, but it may be observed that with 270,000,000 tons behind, 10,000,000 tons a week for the eighteen weeks after Labor Day would raise the figure to but 450,000,000 tons. The coal industry has been sitting on one leg so long that when it starts to walk briskly again that sleepy leg will make it limp for a while. The railroads have so many rusty joints from enforced idleness that there will be much grief before the record movements of a year ago can be approached. Business in coal will be good when we get to 10,000,000 tons a week.

How Alabama Coal Meets the Public

LAST year, when coal was in short supply and prices high, regulation was in the air. At almost every turn there were demands that laws be passed taking control of prices and regulating distribution. These ideas were not confined to Washington and the national Congress and administration but were rampant in state Legislatures and with state officials. Indiana passed a law that caused much grief both to those who sought to administer it and to the coal men in that state.

What happened in Alabama has been chronicled in these columns before and we would now but recall that by co-operating with the Governor the coal producers in that state found a way to meet the public clamor, to satisfy the state officials and to save the local coal industry from regulation.

There is every reason to believe that both sides were fully satisfied with the arrangement of last year because it is being continued this year. The coal industry of Alabama is in no danger of local regulation because the industry is maintaining proper public relations. The largest element in such a program of proper public relations is to recognize that what stirs public clamor is not high prices of coal *per se* but the belief that the prices are extortionate. Conditions in Alabama this year have operated to make the prices on many grades of domestic coal very high by comparison with previous years and by comparison with prices of steam coals from the same field now. It may readily be appreciated that such a condition tends to produce unrest among household buyers of coal.

Recognizing the public interest in the question and the fairness of public opinion when fully informed, the

coal operators of Alabama this year took a leaf from last year's experience and have again gone before the people with their story. A year ago they met the situation by working with the Governor and State Fuel Administrator, giving facts as to costs and full publicity to the prices they were charging at the mines. They went further and provided a means of taking care of all emergency demands for coal, thus answering questions both as to prices and as to supply. They have recently put before the Governor the facts of conditions this year. That official has been shown that the slack demand for steam coal this season has prevented operation at more than about 40 per cent of normal and that this has had a corresponding effect on the output of domestic sizes, because steam and domestic coals are produced and must be shipped simultaneously.

It also has been explained to the Governor and, through him, to the people of Alabama, that the producers of domestic sizes must necessarily sell the resultant steam coal from their mines in competition with the product of mines that is all steam coal and that the steam-coal mines have a very much lower cost of operation. Because of this the prices of domestic coals cannot be lowered as much in comparison with last year as have the prices of steam coals. This is all elementary arithmetic to the coal man everywhere and part of the a b c of the business, but to the ordinary household buyer and consumer it needs considerable elucidation.

To meet the situation the Governor has announced that the state will compile and publish official data showing the prices of coal f.o.b. cars at the mines, freight rates to all the important towns and cities and, furthermore, what in the opinion of the state constitutes a reasonable margin for the retail dealer. Even in the matter of the retailer's margin the Governor is proceeding on figures given him by the trade, for he has a volume of reports from the retail dealers submitted last year and accepted by the state.

Thus each householder in the state who buys Alabama coal may satisfy himself as to whether he is being charged a proper price for coal. Furthermore, he will learn that coal can be had at prices ranging from \$3 to \$7 per ton. He will learn that, as in purchasing meat or cloths, he can buy coal of varying grades and qualities at prices to suit his family purse. The \$3 and \$4 coal will keep him warm, but is of ordinary grade; for \$6 or \$7 a ton he can have a fancy grade, a "luxury" brand, that is higher priced because it costs so much more to mine. The schedule of prices, freight rates and retailers' margins to be published by the state will do something else, for it will give mine prices as scheduled ahead. The prices established by the operators are higher for each succeeding month in much the same way as anthracite prices are graduated to encourage early buying. The widespread publication of present and future prices will do much to assist the householder in making up his mind to buy early and avoid the fall rush.

Perhaps the reader who has followed us this far has seen the similarity of the Alabama plan of forestalling public criticism of coal and of meeting a tangled situation by a fair statement of facts with that of Mr. Hoover for aiding the coal industry in a national way. Senator Frelinghuysen had the same intent and so expressed himself at the second of the conferences with the coal trade in Washington early in June. In Wash-

ington, however, there was not such a "meeting of the minds" as it is evident has taken place in Birmingham. Nevertheless we believe that a majority of the men in the coal industry have no desire to deny the public the information about coal that it wishes and that sooner or later this majority will find expression to their desire to co-operate with the Government and the public in meeting the demand for such facts as there can be no warrant for withholding. The straightforward, commendable policy of the Alabama operators is evidence that in the end a policy of reasonableness will triumph over the bitter ends so far in the ascendant in the trade during the recent Frelinghuysen episode. Signs are not lacking that the reaction has already set in.

Breakage of Coal in Mine

MUCH attention is being paid to breakage of coal above ground and but little to breakage below. No one seems to be studying the matter of degradation of coal underground. No figures have been published—perhaps none have been obtained—as to the quantities of each size of coal derivable from wide or narrow rooms or headings, from wide pillars or narrow. Yet surely this subject is worthy of consideration.

One of the principal reasons why cutting machines have been installed is that they reduce breakage and so decrease the production of the smaller sizes. Wage differentials rarely are sufficient to encourage their use without this further incentive. However, attention might be paid to the loading machine, which, by being able to lift larger lumps and by dropping the coal only from the end of the conveyor into the car, saves the mine-loader from having to break up the coal to load it and averts the necessity for casting it across the room into the distant car. Some day we may find some way of gently lowering the coal into the car from the conveyor end.

The abolition of the room and pillar, the use of long-wall undercutting, the complete control of shot-placing and shotfiring, the utilization of the roof weight to bring down the coal, the general introduction of the loading machine will combine in the future to reduce the amount of slack formed.

Another waste of large coal is on the roadways. The cars are now topped with the bigger coal so as to permit of loading the car above the level of the sides. The result is that when the car is bumped in being coupled or switched it is the lumps that fall off and not the small coal, which is invariably placed in the middle of the car, where it cannot be dislodged. Our roads become filled with the most marketable of our coal. It does not remain of that quality for long, for it is soon broken to the finest slack. Nevertheless at the time it fell to the ground it was the best kind of coal in the car.

Doing away with the uncoupling of cars underground would end much of this loss. Replacing gathering by through locomotives also would help. The use of solid cars would do little, as the bottom-dump car and the end-gate car, in the main, spill only slack through many openings. However, stiffer cars will mean less breakage in transit. There is a certain amount of degradation arising from car distortion and from the consequent movement of lump on lump. This probably is small, however, as compared with the loss due to spillage of the larger coal.



NATALIE CLUBHOUSE, BUILT BY MADEIRA-HILL INTERESTS FOR THE EMPLOYEES OF THEIR ANTHRACITE MINES

Madeira-Hill Interests Open a Community Club House For Employees and Public at the Natalie Mine

Basing Their Plan on the Fact That You Can't Appreciate People You Don't Know, the Colonial Colliery Co. Has Erected a Handsome Building as a Community Center for Men, Women and Children

BY DEVER C. ASHMEAD
Kingston, Pa.

IN EVERY business, no matter of what nature, two essentials must be met if it is to be successfully operated. The more important of the two is loyalty on the part of employees, but the square deal on the part of officials which, in large part, creates that loyalty, must never be overlooked. The square deal means more than a strict compliance with even the most elaborate of agreements as to wages and working conditions. The management must show a keen personal interest in the welfare of its men. The rate of pay often has less effect on the attitude of the employed than do other considerations not so direct and tangible.

To obtain the desired results at the mines the living conditions and the environment can never be neglected with safety, for contentment is the chief ally of loyalty. To this end dwellings must be fit to live in and not such as to serve for a bare existence. Though luxury may not be necessary in the construction of the homes, comfort at least is essential.

Comfortable living quarters, however, cover only one phase of the situation, for unless the miners, particularly those of foreign extraction, are taught how to

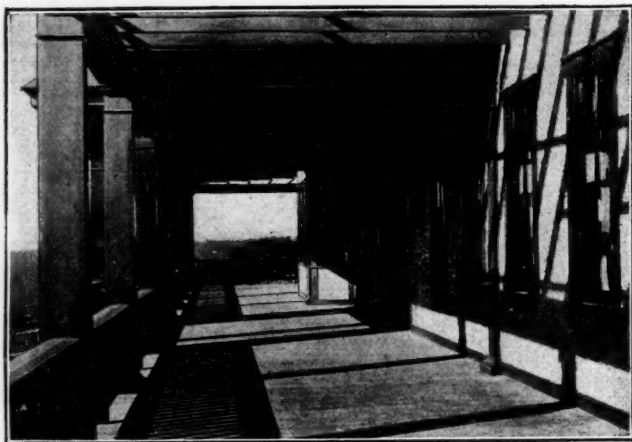
utilize the advantages provided, the expenditure incurred by the company in providing them is wasted. This element in Americanization, as a rule, must be accomplished imperceptibly, so that the recipient will not realize that his tastes and habits are being schooled.

Next to comfortable living quarters probably comes the opportunity for agreeable social life. Without suitable social relations aversion and distrust are likely to take root, and these suspicions may soon turn to hatred. A dislike which begins with the neighbors may end by being visited on the company itself. The miner cannot of himself provide any place where social functions may be held, except, of course, in his own home, and he entertains a natural diffidence about including or attempting to include within his circle of friends those in authority in the company. Furthermore, local officials feel that they should not become overly familiar with their employees, as this may undermine discipline.

As a result various social strata become perceptible at a coal operation. The members of one stratum do not feel at liberty to associate, at least intimately, with those of any others. The opportunity, therefore, of



SOCIAL ROOM—A LARGE APARTMENT, FITTED WITH MISSION FURNITURE AND A LARGE OPEN GRATE. The piano was furnished by the profits of the canteen which has been established by the committee in charge of the club.



VERANDA WILL BE COVERED BY CLIMBING VINES
The veranda extends down one side and partly across both ends. The walls of the main building are mainly of steel lath covered by stucco.

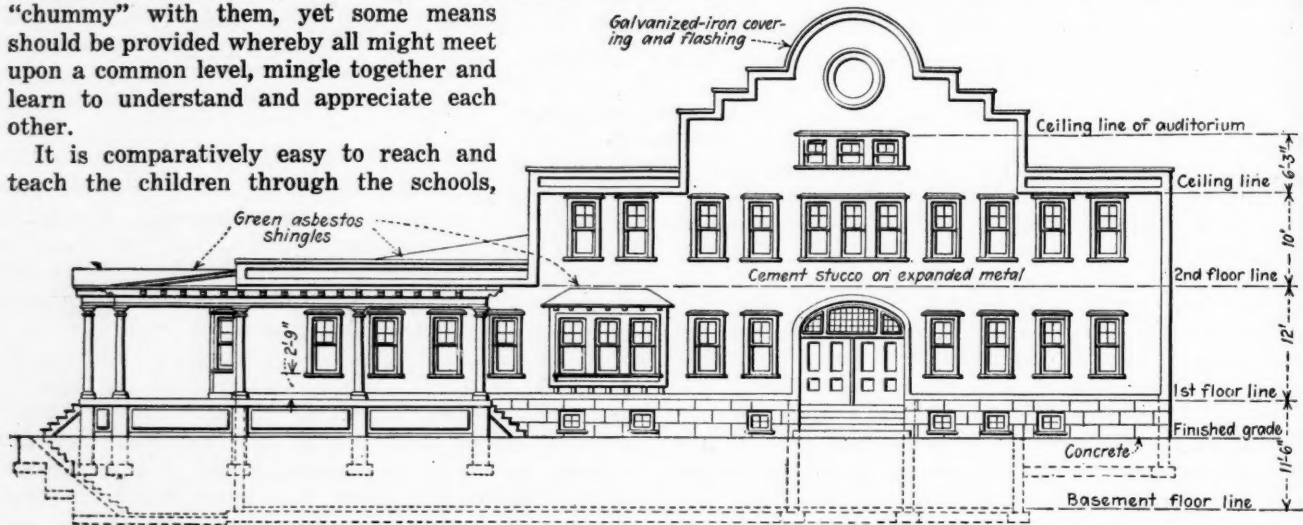
fully understanding each other is lost or is never presented. While no one would advocate that the superintendent of an operation bring his miners and laborers into his house, treat them as intimates and become "chummy" with them, yet some means should be provided whereby all might meet upon a common level, mingle together and learn to understand and appreciate each other.

It is comparatively easy to reach and teach the children through the schools,

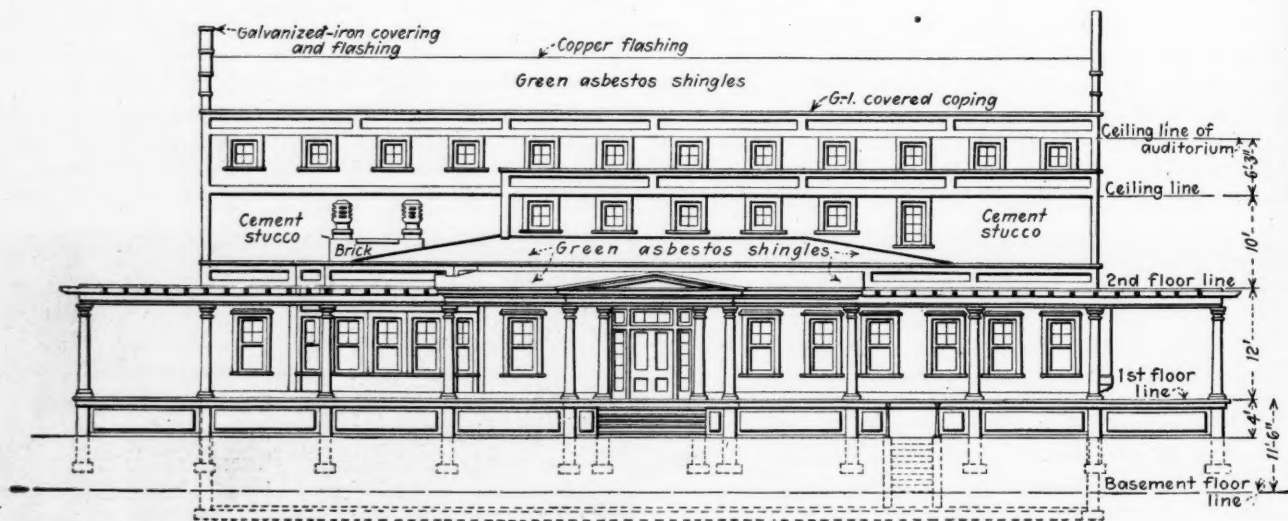
provided the Boards of Education are selected with judgment, which, unfortunately, is not always the case, but the hardest problem is the education of the parents. Many of these were born in foreign lands, their understanding of our language is limited, and they resent direct approach. Thus the best way to bring about a mutual understanding is through a commingling of all elements in some public place where all are in quest of diversion. Various means are available for providing a suitable place for social gatherings. That adopted by the Madeira-Hill Co. at the plant of its subsidiary, the Colonial Colliery Co., at Natalie, Pa., has proved highly efficacious and accordingly will be described.

WOMEN WORKERS SOURCE OF COMMUNITY SPIRIT

Soon after the close of the war this company obtained the services of Miss Colby, who had served in France and been decorated with the Croix de Guerre. She was assisted by Miss Francis, who had likewise seen foreign service. Miss Francis has returned to the Foreign Service and is now with the American troops in Germany, and a Miss Howard who has also seen foreign service, is taking up her work. At first the work of these women consisted in gaining the confidence

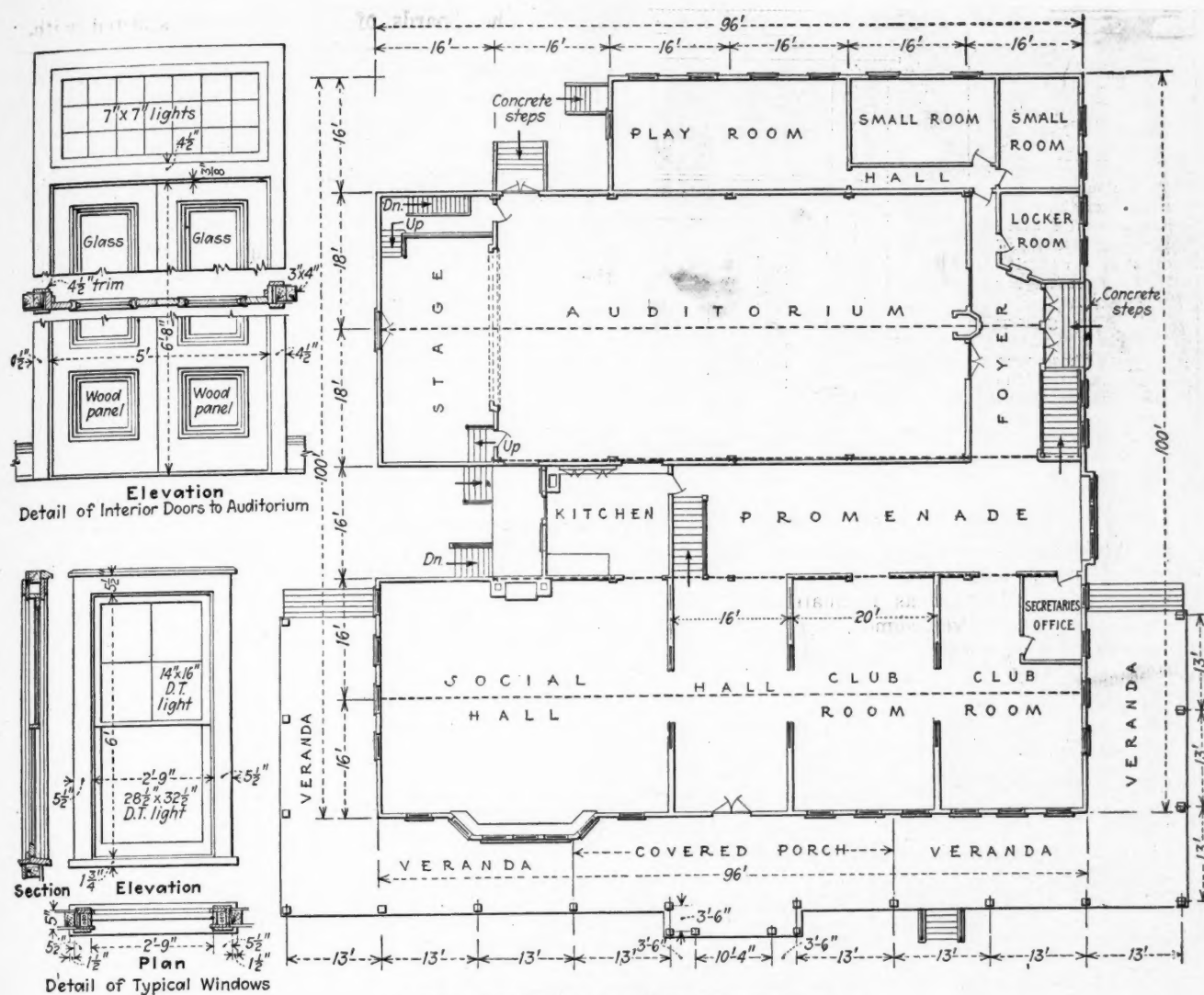


Auditorium Front Elevation



Veranda Front Elevation

TWO VIEWS OF THE CLUB HOUSE—ONE FROM THE FRONT AND ONE FROM THE VERANDA SIDE
The auditorium goes from the main floor through the second floor to a point more than six feet higher, making a high room which will be fresh and airy even on a hot day. It is to accommodate this lofty room that the building reaches its highest point to the right of the center.



MAIN FLOOR PLAN, NATALIE CLUB HOUSE

The building measures 96 x 100 ft., not including the spacious porch which runs down one whole side and part of the front and rear and, being 12 ft. wide, adds considerably to the floor space of the building. The small room in the upper right-hand corner is at present used as a library.

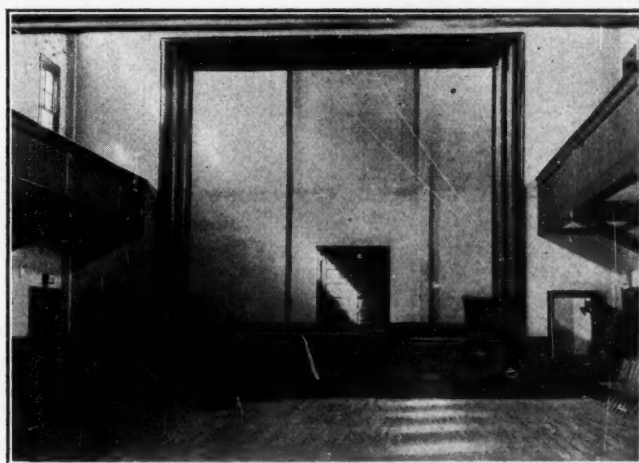
and friendship of the people and studying their needs. It was then decided that a club should be formed consisting mainly of the people of Natalie. A club house was designed and redesigned several times before work upon it was finally begun. The work is being done under the auspices of the Pottsville branch of the Young Men's Christian Association.

This building is of simple architectural style but of highly attractive design and was erected at much expense. It is constructed chiefly of steel with walls of Hyrib lath covered with stucco. The main entrance opens into a wide hall on the left of which is a coat room. Directly beyond the entrance is an auditorium capable of seating 600 people. A balcony traverses three sides of this room and at one end a large stage is provided where entertainments may be held. The auditorium is so arranged that basket- and volley-ball may be played in it. The main floor as well as all others is of hardwood, varnished and waxed.

To the left of the cloak room is a library containing about 1,000 volumes, in the rear of which, alongside the building, is the reading room, which is furnished with current magazines. These, by the way, are selected by the men themselves and embrace such well-known popular and technical publications as *Scribner's*, *Harper's*, *The Outlook*, *Saturday Evening Post*, *The*

New Republic, *Coal Age*, *Power*, *Electrical World*, *American Machinist*, and the like.

In the rear of the reading room is a children's play-room, which will be fitted up next autumn as a kindergarten. At present it is used as a canteen. This is

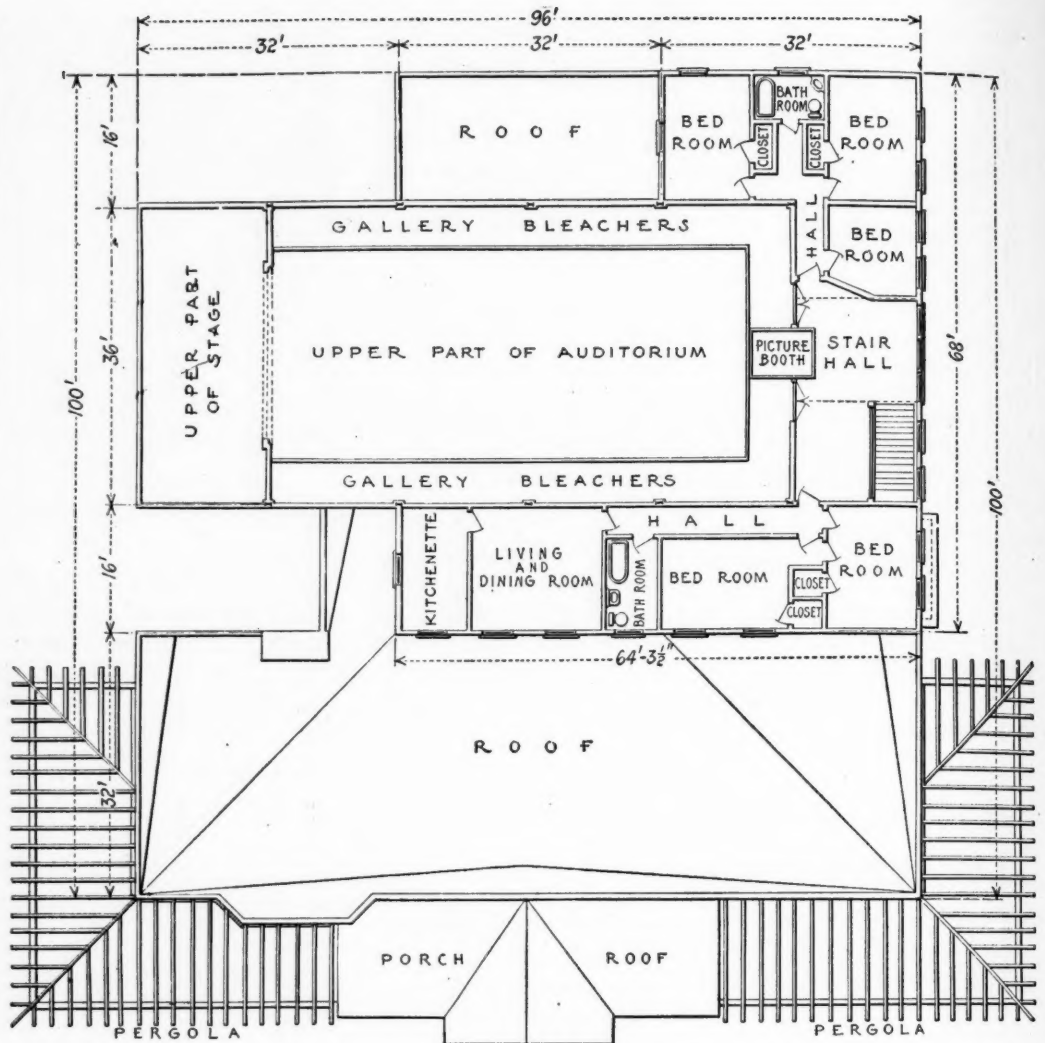


AUDITORIUM WILL SEAT SIX HUNDRED PERSONS

This includes, of course, the number that the balcony, which is on three sides of the hall, will accommodate. This room will be used also for basket and volley ball.

Second Floor Plan

This floor consists mainly of the auditorium and flies of the stage and of the rooms occupied by the managing staff of the building. The gallery bleachers afford seats to those who wish, as on the opening day, to view games of volley ball given in the auditorium below. The accommodation for the staff includes five bedrooms, one living and dining room and two bathrooms. Note the pergola which covers most of the porch in the lower story, giving it light and, when furnished with vines, beauty also. However, a small part of the porch is roofed and thus available in stormy weather.



run by the men. On the opposite side of the main entrance is the office, in rear of which is the boys' gameroom, where all sorts of games are provided. In the rear of the office also is the men's gameroom. The main hall passes from the front entrance alongside the auditorium, past the men's gameroom and leads to the side entrance. Across the hall from the men's gameroom is the large social parlor with its immense fireplace. On the balcony floor is a sewing room and on the right side of the auditorium upstairs is the apartment for the secretaries, while on the opposite side are located several rooms for the accommodation of visitors.

Between the social parlor and the auditorium is a large and complete kitchen equipped with a hotel range. The arrangements are such that it is possible to pass eatables and beverages directly from the kitchen to the auditorium. A billiard room is located in the basement. This is now provided with four tables for pocket billiards. Space in this room is also provided for bowling alleys. It occupies about one-half the basement, the remainder being taken up by a children's playroom and by shower baths and locker rooms for both men and women. The children's room will later be furnished with some gymnasium apparatus, at least with that portion of this equipment that can be fastened to the wall. The larger pieces of this apparatus will be so arranged in the auditorium that they can be quickly removed.

Throughout, the building interior is artistically dec-

orated and substantially but plainly furnished. As a whole this structure is of better design and is better equipped than many country clubs to be found near large cities. A wide veranda extends down one side of the building and partly across both ends. The grounds have not as yet been finished, but the work so far completed indicates that they will be highly attractive. Tennis courts soon will be provided, so that both outdoor and indoor recreation may be indulged in by club members.

As the official opening in this building did not take place until June 4 it is somewhat early to predict the exact nature and scope of the results to be attained. What has already transpired, however, seems to point unmistakably in the right direction. Thus in the first three days of the campaign for membership every family in Natalie with the exception of three put in its application to join the club, and a large majority had paid their dues for the coming year. Not only are the people of Natalie joining the organization but also those residing in Marion Heights, a mile away, are seeking admission. The men in a spirit of good fellowship that shows that they are "good sportsmen" are determined to do their part in making a success of the new development in which the company has expended so much money.

The major part of the effort to teach the foreigners will be through the children. By teaching the children and young people, cleanliness, neatness, their duties to their neighbors, love of country and sportsmanship,

these children will carry home these thoughts to their parents who cannot but see the advantages to be gained by adopting them and thereby becoming better members of the community and country.

The vehicles by which the children will be reached will be clubs of various kinds. Some of these clubs are already national in their scope such as the Girl Scouts, and the Boy Scouts, the Brownies for the little tots, the Natalie Marines for the boys; sewing societies, and musical clubs.

The club house will also be used as a meeting place for general organization meetings for the company and the house and surrounding grounds will be used for first-aid contests and company outings.

Efforts to establish this club are not altogether one-sided. Thus far the men themselves have purchased and paid for, or agreed to pay for, equipment costing \$1,400. This covers the piano, which was purchased outright, as well as various minor items procured in the same manner. The only pieces of equipment that have not been paid for in cash are the pool tables. To purchase these, money was borrowed by the committee, and in order to repay it the men have established the canteen already referred to. This is open every evening and dispenses ice cream, candy, cigars, cigarettes and the like. The profit obtained from the sale of these items goes into the fund for the tables.

Although the club is hardly under way yet a difference in the relations existing between the men has

already been noticed. In the younger generation also a marked change for the better is perceptible. The boys at play are much less prone to wrangle over their games and more frequently accept without question the decision of the umpire. No lesson is harder to learn than that no one can win all the time and that to accept without bitterness a verdict or outcome that is unfavorable is to acquit oneself as a good citizen. This is the training of a well-conducted gameroom and one of the assets which the Natalie club house should afford.

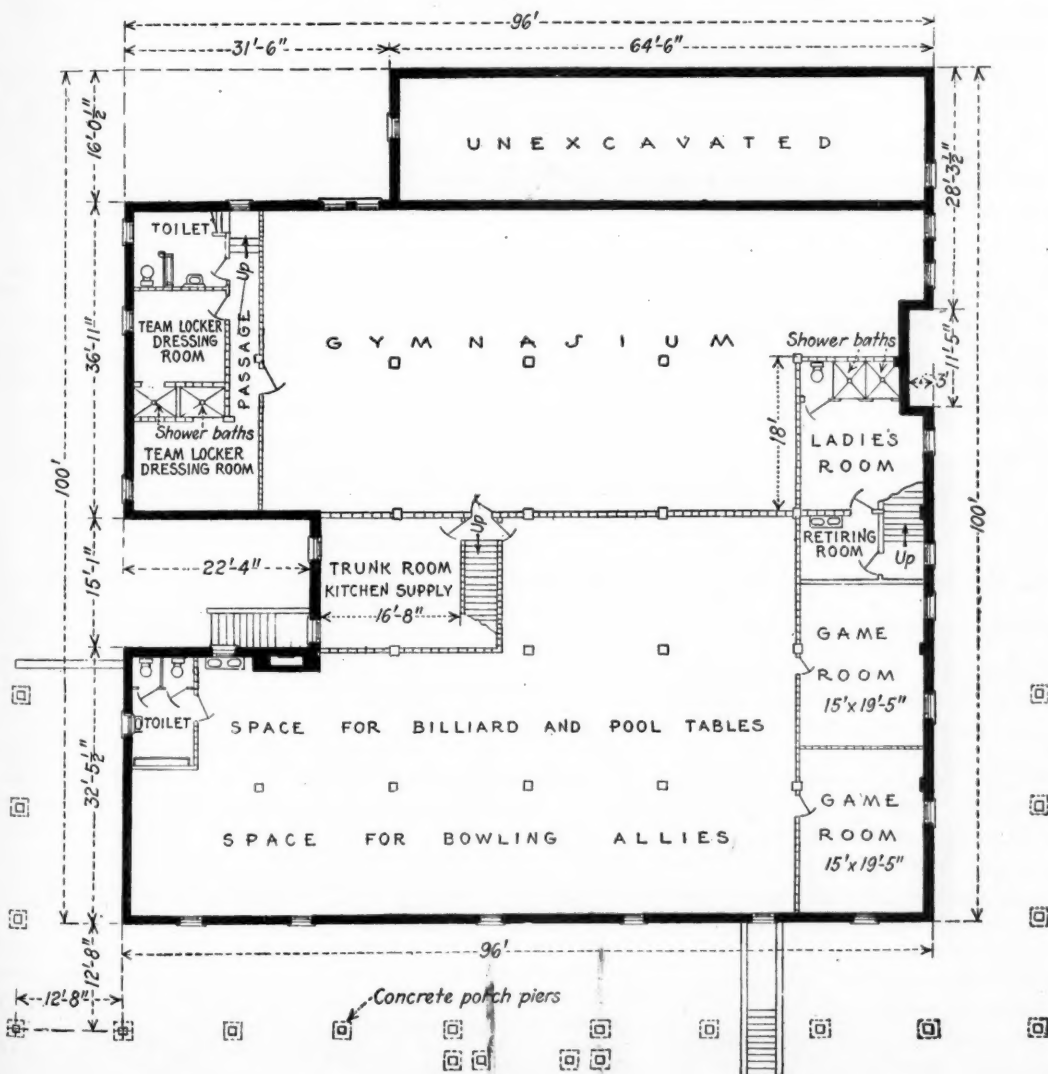
TOWN HAS MACADAM WALKS, STREET LIGHTING

At Natalie can be seen the evolution of the mining village. In the beginning there was the old-time house which now, fortunately, in most mining communities is chiefly a memory. It was nothing more than a one-story shack with two or three rooms but housing a family of ten or twelve people.

The next step in house construction was a rough-boarded two-story building with extremely meager yard room. No conveniences, as we now understand that term, were to be found in these houses. Today the main street of the town lies between dwellings of two general types. The first is a small clapboarded single house of attractive design. The other is double with a small front and large back yard. All are provided with electric lights, well-equipped kitchen, a bathroom and running water, while some are heated by steam. All in all these dwellings, which are kept well painted,

Basement Plan

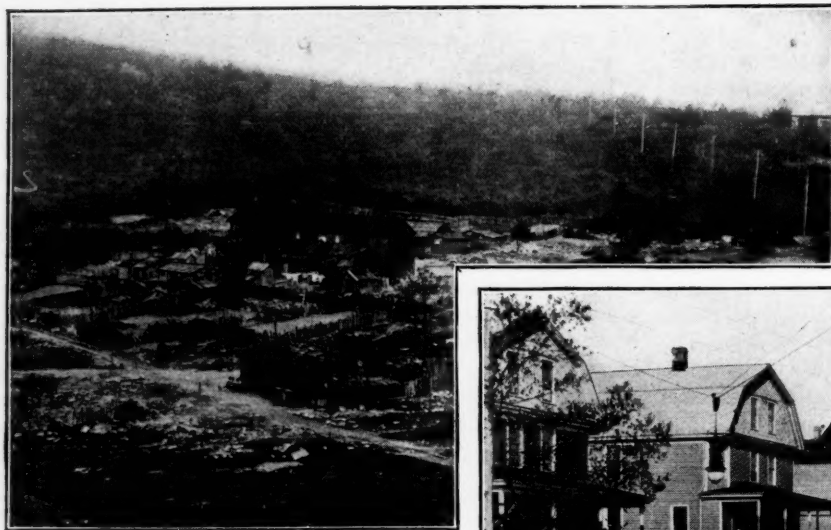
Showing gymnasium, bowling-alley and pool-table space. As the building is on a somewhat steep side hill, the basement is not set much below the ground. The gymnasium occupies about the same space as the auditorium above it. The auditorium is to be used for motion pictures, the booth being placed at the rear of the gallery which is located on either side and in the rear of the big room.



show a decided contrast to those first mentioned. Not only have better dwellings been built but a sewer system has been installed, the streets have been macadamized, sidewalks built, electric lights placed at every corner, and the fences and houses alike are kept in good repair.

And what does all this mean? By rendering life in a mining community worth while, by teaching the

a person they know well and understand thoroughly. Many of the discords of the past, regardless of whether they have been industrial, national or international, can be traced directly or indirectly to a lack of understanding. When employees and company officials mingle together in the field of sport they learn to understand and respect each other. The industrial imbrolios that



The New Natalie

Main Street of village. On the left are two of the most recent houses, which are clapboarded, painted, electrically lighted and furnished with baths. Some are steam heated. All have picket fences. The road is being macadamized and an electric lamp lights the street.



Natalie as It Was

An unredeemed stony batter with slab and stump fences, huts and two-story shacks rough-boarded and unpainted. The roads are trails and enough stone lies on the top of the ground to put foundations under a whole village. The three-room huts represent the early construction.

aliens there resident not accustomed to our manners and usages the use and enjoyment of our conveniences; by providing means for social intercourse between all grades of society, not only is loyalty for the company encouraged but the employee of foreign birth or extraction acquires a love and respect for the country of his adoption.

Few indeed are the individuals who really dislike or who can long harbor an insurmountable antipathy to

have characterized the past will thus be lacking in the future.

The Colonial Colliery Co. has been unusually successful in creating the right spirit between employer and employee. In three years it has had only one case before the Board of Conciliation. This is a testimony to the presence at its collieries of that square deal which is the basis of good management and that loyalty which flows from an adherence to this principle.

Doubt Thrown on Protection Coal Dust Affords Against Tuberculosis

DR. R. M. WILSON, addressing the "Industrial Welfare Society" of Great Britain, an association of doctors engaged in industry representing 6,000 or 7,000 firms, said that Dr. Haldane had suggested that as coal dust was an immunizer against tuberculosis why not take some coal dust and dust it over the rock dust in mines that contain siliceous material. The plan thus advocated had been tried and found successful. With the coal dust in the lungs of the workers they were protected against the irritating siliceous dust. Dr. E. L. Collis, of Cardiff, in discussing the paper, said that investigations did not justify that opinion. These investigations have not yet been made public, but they showed that miners at the face were the men who were afflicted by tuberculosis and that they were as unfortunate in

this respect as other men. Silica had been found, he said, to be an actual poison and its action was chemical and not mechanical.

PRESIDENT HARDING'S APPROVAL of the army bill carrying appropriations for the year which began July 1 made those funds available. Under the law the army is limited this year to \$5,250,000 for the purchase of fuel, but in addition the West Point Military Academy is given \$85,000 for fuel. The bill also authorizes contracts for fuel in advance of the appropriation for a single year in the following proviso: "That hereafter when in the opinion of the Secretary of War it is in the interest of the United States so to do, he is authorized to enter into contracts and to incur obligations for fuel in sufficient quantities to meet the requirements for one year without regard to the current fiscal year, and payments for supplies delivered under such contracts may be made from funds appropriated for the fiscal year in which the contract is made or from funds appropriated or which may be appropriated for such supplies for the ensuing fiscal year."

Origin and Nature of the White Partings in Coal Seams As Illustrated by the Coals of Lancashire, England*

Most of the Iron in American Coal Is Combined with Pyrite — What Little Ash Is Found in Lancashire Coals Consists Largely of Knifeblades of Soluble Carbonates Termed Ankerites—These Oxidize and Break Up the Coal

By F. S. SINNATT, A. GROUNDS AND F. BAYLEY†

THE coals of Lancashire, England, usually contain a low percentage of inherent ash. Of the coal in twenty distinct seams recently examined none contained more than 6 per cent of ash, and many had less than 3 per cent. The Bickershaw Yard coal shows as little as 0.8 per cent. The coals greatly vary in their properties, some being practically non-caking and others having varied degrees of coking quality. One, that from the Mountain Mine, probably possesses the highest caking power of any known coal. It yields a perfect metallurgical coke. In distinguishing the coals the names in most common use have been adopted, but it must be recognized that other terms may be applied to the same seams in different localities.

In this paper only the natural inorganic constituents of the seams have been considered. In obtaining the samples every care was taken to have them truly representative. A solid columnar section was taken of the whole seam, the cross-section of which was from 6 to 18 in., according to the ease with which the coal could be handled. The piece of coal was packed in a box and carried to the laboratory for examination.

The present investigation was conducted with the following intent: (1) To determine whether any relationship could be established between the composition of the white partings (ankerites) and the ash produced when the coal is incinerated; (2) to trace, if possible, the source of the carbon dioxide which is evolved when coal is treated with mineral acids, and (3) to investigate the manner in which iron is combined in the coal substance.

AMERICAN IRON PYRITIC; THIS IRON FERROUS

The last subject is of interest in view of the fact that according to the work of Powell and Parr (Bulletin III., University of Illinois) most of the iron present in certain American coals occurs in the form of pyrites. From the experiments described in the present paper it would appear that a proportion of the iron in Lancashire coals exists in the ferrous state, either in the white partings (or ankerites) or in some other form of combination.

Most coal seams contain a proportion of white inorganic partings, of which no study has been made as far as we can find in the records. It will be seen later that the material may be considered either as substituted calcium carbonate or as dolomitized siderite. The term ankerite, which is the one generally accepted in mineralogy for compounds having a similar constitution, has been used to designate the substance of the white partings.

*Article entitled "The Inorganic Constituents of Coal with Special Reference to Lancashire Seams," published as Bulletin 8 by the Lancashire and Cheshire Coal Research Association.

†Lancashire and Cheshire Coal Research Association.

The ankerites occur in the form of sheets varying in thickness from $\frac{1}{8}$ -in. to a mere film, at right angles to the bedding plane and on the face of the coal, but also frequently on the end of the coal. The layer of material may be so thin as to be transparent, and its presence can be detected only by the fact that after being allowed to stand in the air the coal becomes covered with an opalescent film, consisting of oxidized ankerite. When ankerite occurs adjacent to a band of vitrain it is frequently perfectly white in color, though portions which are in contact with clarain or durain are comparatively dark and impregnated with fine coal.

It has been observed that a band of ankerite frequently terminates at a point where a layer of fusain begins. The latter material is of a highly porous nature, and it would appear that the ankerites were deposited from a liquid medium which travelled horizontally along the layer of fusain.

The ankerites form a distinct line of weakness in the coal, and if the latter is treated with dilute mineral acids the lumps disintegrate markedly, owing to the decomposition of these compounds. All the specimens examined contained varying percentages of iron, which were almost entirely in the ferrous condition, and it will be seen from the analyses that certain examples contained a distinct percentage of manganese. Average specimens of the ankerites from a number of seams have been analyzed, and the results are given in Table I.

TABLE I. PERCENTAGE COMPOSITION OF THE WHITE PARTINGS (ANKERITES)

	Lower Mountain Mine	Arley	Ravine Mine	Sapling Mine	Hoo Can- nel	Rushy Park	King Mine
Calcium oxide.....	27.40	28.56	29.94	42.79	30.08	28.76	30.84
Magnesium oxide.....	13.33	11.51	16.15	0.41	11.18	8.74	5.76
Ferrous oxide.....	14.56	9.81	4.80	13.07	14.16	16.23	18.42
Manganese oxide.....		0.82	1.11			0.59	0.31
Carbon dioxide.....	45.21	41.52	44.35	41.88	44.58	42.46	42.03
Silica.....		6.05	2.25	1.70		2.45	
Ferric oxide.....		0.60	0.25	0.17		0.63	
Pyrites.....		1.11				0.09	2.47
Equivalent to:							
Calcium carbonate.....	48.93	51.00	53.14	76.41	53.70	51.36	55.08
Magnesium carbonate.....	28.30	24.07	33.65	0.66	23.48	18.28	12.10
Ferrous carbonate.....	23.46	15.81	8.40	21.68	22.82	26.18	29.68
Manganese carbonate.....		1.33	1.80			0.96	0.50
Calcium sulphate.....			0.44				
Silica.....		6.05	2.25	1.70		2.45	
Ferric oxide.....		0.60	0.25	0.17		0.63	
Pyrites.....		1.11				0.09	2.47

Specimens of ankerite obtained from the different layers in certain seams differ considerably in composition, the analyses in Table II showing the greatest variation yet encountered.

TABLE II. ANKERITE FROM SEAM 8 FT. THICK

	Top 15 In., per cent	Bottom 7 In., per cent
Silica.....	0.91	2.25
Calcium carbonate.....	52.09	53.14
Magnesium carbonate.....	29.74	33.65
Ferrous carbonate.....	16.13	8.40
Manganese carbonate.....	1.41	1.80
Ferric oxide.....	0.33	0.25
Calcium sulphate.....	nil	0.44

The compounds undergo oxidation on exposure to air and become covered with reddish-colored ferric compounds. The analyses in Table III show the change in composition which occurred when a specimen of ankerite was exposed to the air in contact with the coal. It should be pointed out that the two specimens of ankerite were of necessity obtained at a slight distance from each other, and some small difference in chemical composition was detected.

TABLE III. SHOWING CHANGE IN ANKERITE AFTER THREE MONTHS

	Sample Freshly Mined, Color—White	Sample After Exposure to Air for 12 Weeks, Color—Red
Ferric iron.....	0.33	0.91
Silica.....	0.91	0.17
Ferrous oxide.....	9.29	10.58
Manganese oxide.....	0.87	1.08
Calcium oxide.....	29.17	29.31
Magnesium oxide.....	14.22	13.32
Carbon dioxide.....	44.67	44.74

As might be expected, the ankerites dissolve freely in water in the presence of carbon dioxide, and the resulting solution rapidly undergoes oxidization in the presence of air, with the precipitation of basic ferric compounds.

FOUR-TENTHS OF ASH WAS FROM ANKERITE

No accurate method of determining the percentage of ankerites in coal has been elaborated, but an approximate value was obtained for one sample of coal by crushing about 1,000 g. until it would pass through a 4-mesh screen, and by picking out with forceps all the ankerites visible. The coal contained 4.2 per cent of total ash and 3 per cent of ankerite. The equivalent weight of ignited ankerite was 1.7 per cent—i.e., 40.5 per cent of the ash was derived from the ankerite present.

Samples of the coals from which the ankerites described above were obtained were incinerated at a temperature of 900 deg. C., and the ash resulting was analyzed, with the results shown in Table IV.

TABLE IV. PERCENTAGE COMPOSITION OF COAL ASH

	Lower Mountain Mine	Arley	Ravine Mine	Sapling Mine	Hoo Cannel	Rushy Park	King Mine
Silica.....	40.20	43.21	35.00	38.92	32.98	25.49	29.45
Ferric oxide.....	25.66	12.38	9.99	48.40	23.34	38.80	26.32
Alumina.....	25.41	28.47	31.58	3.68	26.86	20.61	29.53
Calcium oxide.....	3.52	7.12	11.63	5.04	6.88	7.08	5.96
Magnesium oxide.....	1.98	2.36	2.45	0.50	3.10	3.22	0.11
Sulphur trioxide.....	2.02	4.30	7.68	0.16	3.04	1.25	1.98
Alkalis and loss.....	1.21	2.16	1.67	3.30	3.80	3.55	6.65
Percentage of ash in the coal.....	3.03	3.20	5.20	4.00	24.40	2.40	4.60

A comparison of the results in Table IV shows that the proportion of the various constituents occurring in the ash is not by any means parallel with that found in the ankerites.

The percentage of carbon dioxide evolved when the coals were treated with mineral acids was determined by a method described in Bulletin No. 7 of the Lancashire and Cheshire Coal Research Association, from which the following results are extracted: Mountain Mine, 0.57 per cent carbon dioxide; Arley, 0.18 per cent; Ravine 0.32 per cent; abnormal sample I., 6.85 per cent; Pemberton Two Foot Seam, 0.72 per cent; Garswood Nine Foot Seam, 0.44 per cent; Hoo Cannel, 1.85 per cent; Rushy Park, 0.76 per cent; Lower King, 0.77 per cent; Bickershaw Yard, 0.40 per cent.

It was thought that it might be possible to calculate approximately the proportion of the ankerites in a particular seam by the above determination, but it was

found that the percentage of carbon dioxide evolved was in excess of that required to combine with the whole of the bases occurring in the coal as ankerites.

Table V shows the result obtained if the carbon dioxide evolved is assumed to be derived solely from ankerites.

TABLE V. COAL FROM LOWER MOUNTAIN MINE (Ash = 3.03 per cent. Carbon dioxide = 0.57 per cent)

	Coal Ash Original Analysis (100 g.)	Gross Constituents of Coal Ash in 100 g. of Coal	Ankerite Analysis	Ignited Ankerite Equivalent to CO in 100 g. of Coal g.
Silica.....	40.20	1.218	14.56	.....
Ferrous oxide.....	25.66	0.779	.....	0.314
Ferric oxide.....	25.41	0.770	.....	.....
Alumina.....	3.52	0.106	27.40	0.533
Manganese oxide (MnO).....	1.98	0.059	13.33	0.263
Calcium oxide.....	2.02	0.061	45.20	.....
Magnesium oxide.....	2.02	0.061	.....	.....
Carbon dioxide.....	.....	.....	.....	.....
Sulphur trioxide.....	.....	.....	.....	.....
Pyrites.....	.....	.....	.....	.....
Alkalis and loss.....	1.21	0.036	.....	.....

From the consideration of Table V it will be clear that the amount of carbon dioxide evolved when coal is treated with mineral acids is more than sufficient to combine with the bases found in the inorganic constituents of the coal, and must be derived from other sources than ankerites.

CARBON-DIOXIDE CARBON SHOULD BE DEDUCTED

The source of the carbon dioxide has not been traced with accuracy, but it will be shown later that not only does some of the iron in the ankerites recur as ferrous carbonate but some of the iron in the coal itself is of that nature. The percentage of carbon dioxide, however, is of some interest from an analytical point of view. Unless the amount of carbon occurring as carbon dioxide is deducted from that found by combustion of the coal, the percentage of organic carbon will be too high. The percentage of carbon dioxide should be deducted from the percentage of volatile organic matter, as presumably the whole of the carbon dioxide is evolved at a temperature of about 900 deg. C. In the case of the abnormal sample, the volatile organic matter determined was too high by 6.8 per cent.

N. Simpkin, in collaboration with one of us, is continuing certain phases of the work, and has treated the coals with dilute hydrochloric acid and determined the amount of iron which passes into solution; the total amount of iron present also was found.

It appeared desirable to ascertain what proportion of this iron occurred in the ferrous state, and specimens of the fresh coal were treated with hydrochloric acid (10 per cent) in an atmosphere of carbon dioxide. The excess of coal was removed by filtration in an atmosphere of carbon dioxide, and the amount of iron in the filtrate determined. It was found that the liquid contained a negligible quantity of iron in the ferric condition. The iron in the ferrous condition was determined by oxidation and subsequent titration with a standardized solution of titanous chloride. As this examination had to be performed on other samples of coal, the results are not exactly parallel with those previously quoted. The preliminary results are, however, strictly comparative, and are given in Table VI.

TABLE VI. FERROUS IRON IN LANCASHIRE COALS

Coal	Total Iron per Cent	Ferrous Iron Extracted by H. Cl. per Cent	Percentage of Total Iron
Rushy Park.....	0.494	0.176	35.6
Lower Mountain Mine.....	1.779	0.535	29.7
Arley.....	0.612	0.047	7.7
Ravine.....	1.379	0.205	14.9

The results of the inquiries set forth in the paper are of interest because they show that in coal a distinct percentage of iron is found in the ankerites, the iron being in the ferrous condition and in some other form of combination. It does not necessarily follow that the iron extracted by means of hydrochloric acid is present in the coal in the ferrous condition, as it may have been produced by the action of coal upon ferric compounds. In certain cases distinct oxidation of the ankerites could be detected within a month from the day when the coal was brought from the mine.

From a chemical standpoint it will be of interest to obtain information as to the relative rates of oxidation of ankerites of different compositions, and the effect of this oxidation upon the oxidation of the coal substance and of pyrites. It is not obvious which type will most readily oxidize.

Oxidation obviously produces a change in volume or thickness of the sheets of ankerites, and consequently is a factor contributing toward the disintegration of masses of coal. When coal has been allowed to stand for extended periods, it has been noted that the oxidation of the ankerite sheets extends to a considerable distance into the coal. To the present no direct evidence has been obtained that will show whether the primary heating of coal can be attributed to the presence of ankerites, nor has the effect of manganese, etc., upon the general action of the ankerites been ascertained. However, seeing that ferrous and manganese carbonates

have a clearly recognized catalytic action the examination of this subject in the light of the information contained in this paper would appear to be of much interest. It also would appear that carbon dioxide may be an active agent in the oxidation of the compounds.

We have found that ankerites are freely soluble in water containing carbon dioxide and that the resulting solution rapidly undergoes oxidation, with precipitation of the iron in the form of ferric compounds. It is known that coal in the mass evolves carbon dioxide and in the presence of any excess of moisture the conditions are such as to bring about the oxidation of the compounds, with carbon dioxide and water taking part in the reaction.

When coal containing ankerites is burned, bands of residue from the ankerites will remain separate from the inherent ash of the coal, unless the temperature is sufficiently high to fuse the whole mass. The residual material from the ankerites will consist of highly infusible oxides. It would follow that coal which has been broken to a small size will contain the ankerites and siliceous coal ash in more intimate contact than when larger sizes are used.

Analysts make a practice of quoting the color of coal ashes, and it is well known that such ashes consist of a mixture of particles widely different in color. We therefore make it a rule to pulverize coal ashes to a fine powder (200 mesh), so as to obtain an impression of the color as a whole.

Elements of Design for Anchor Bolts of Machines*—II

Devices to Increase Holding Power of Anchor Bolts—Relative Value of Neat Cement, Sulphur and Lead—Air Holes in Cement Make Small Deformations of Bolts Useless—Lengthening Anchors When Raising Foundations

BY TERRELL CROFT
St. Louis, Mo.

AN angle-iron anchor plate into which two or more bolts pass or some similar arrangement greatly increases the equivalent adhesion of bolts when they are solidly embedded in concrete. Such an arrangement is shown in Fig. 1. In this illustration one of the holding-down units is a threaded rod and the other a standard machine bolt. While in this case a steel angle constitutes the anchor at their lower ends, any piece of metal long enough to engage the lower extremities of two or more bolts and of sufficient transverse strength could be used instead. This method is particularly useful when foundations cannot be made deep. It can be applied to either concrete, brick or stone masonry, and is used to a considerable extent in structural-steel mill buildings for anchoring columns to their footings.

Cemented-in bolts, Fig. 2, are used where anchor bolts must be set in an existing foundation. To place such a bolt, a round hole, about three times the diameter of the bolt that it receives, is drilled in the masonry at the proper position. Then the bolt is inserted centrally in the hole, and lead, sulphur or cement grout is poured around it. As shown in Table I, cement is the best material for this purpose. Such a bolt, placed in cement grout, should be embedded to a depth equal to

at least twenty-five and preferably thirty times its own diameter.

Experiments to determine the relative effectiveness of sulphur, lead and cement in holding a bolt in place in a drillhole were conducted (*American Architect*, p. 105, Vol. XXIV) as follows: Fourteen holes were drilled in a ledge of solid limestone. Seven were 1½ in. in diameter and seven were 1¼ in. in diameter. All were 3½ ft. deep. Fourteen bolts, plain at their lower ends and bearing a nut at the upper end, were fastened in the holes as indicated in the table. All the bolts were "ragged" for 3½ ft. at their lower ends. All were permitted to stand until the holding material was two weeks old.

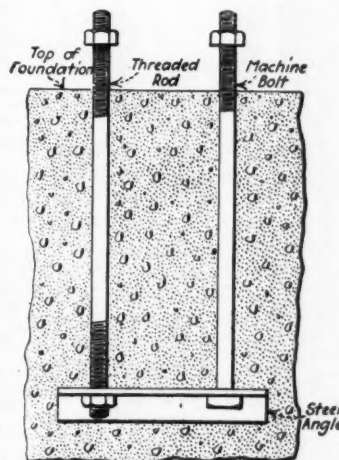


FIG. 1. EMBEDDED ANGLE PLATE INCREASES RESISTANCE TO TENSION

Threaded rods or machine bolts can be used which are passed through holes made in a steel angle.

*Previous article appeared in issue of July 14, pp. 45-51. Copyrighted; all rights reserved by author.

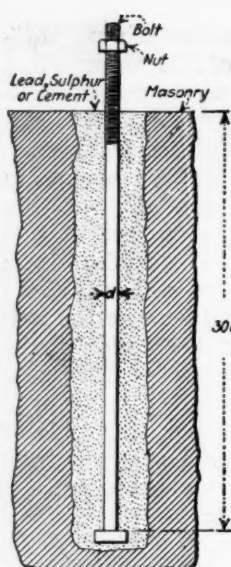


FIG. 2. BOLT EMBEDDED IN COMPLETED FOUNDATION

Lead, sulphur or cement can be used to fill the hole, but cement gives the best results.

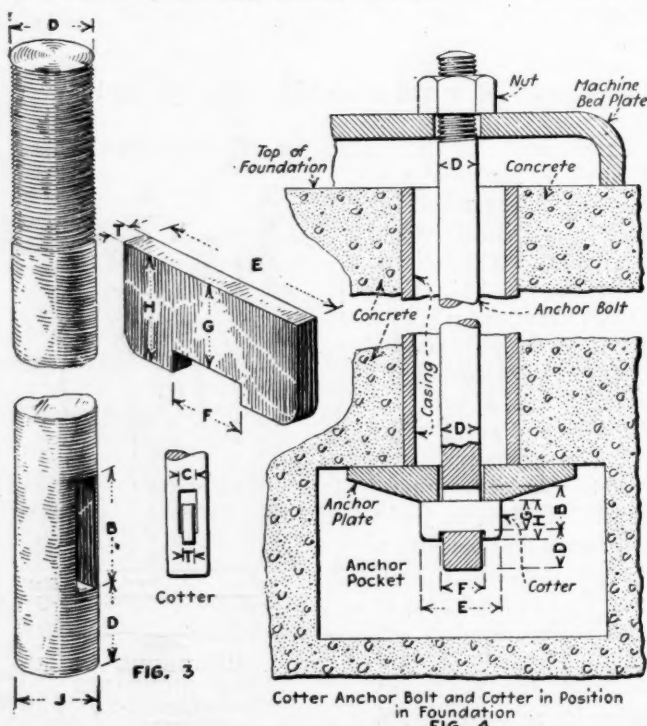
They were then pulled with a lever. The results are shown below in Table I.

Although these experiments do not indicate the adhesive strengths of the various materials employed in pounds per square inch, they show conclusively that cement is the best of the three. It is the most reliable and strongest and therefore should be used wherever possible.

It is not necessary that an anchor bolt which is cemented into place shall have a head as has the one shown in Fig. 2. The head greatly increases the resistance that the bolt offers to being pulled out, but, if the bolt be inserted into the concrete a distance of thirty diameters, more than its full safe strength will be developed.

Anchor-bolt holes sometimes are drilled after the machine is in position on the foundation. In some of the mining plants in the West it is the practice to build foundations for machines without anchor bolts or any provision for their insertion. When the machine is received it is mounted on the foundation. The holes for the bolts are then put down with an air drill, the machine bedplate being used for a templet. The holes having been drilled, the bolts are inserted and grouted into place with portland-cement mortar. It is asserted that where power drills are available this is a highly economical and satisfactory method of anchoring a machine.

Threading the end of a plain rod bolt embedded in concrete does not appreciably increase its resistance to



FIGS. 3 AND 4. ILLUSTRATING TABLE OF SIZES OF COTTER BOLTS

Preferable sizes for all lettered parts are given in Table II.

withdrawal, the grooves of the threads apparently retaining air, and preventing the concrete or cement from filling them. In fact, it seems altogether possible that a slight deformation of a bolt may decrease its resistance to withdrawal rather than increase it unless the bolt can be deformed. A slight roughening of its surface does not appear to increase its holding power. Cutting "jags" or gashes in the lower end of a bolt, or pounding depressions in it with a hammer apparently have little effect one way or the other.

Cotter anchor bolts sometimes are used, particularly where the diameters involved are large. With such bolts it is sometimes cheaper to cut a slot for a cotter in the end of a rod, as shown in Fig. 3, and make the

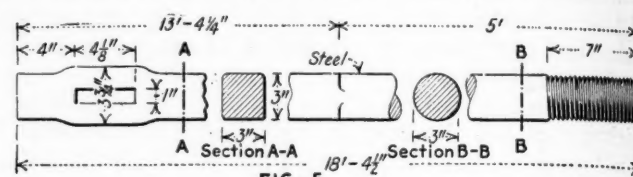


FIG. 5

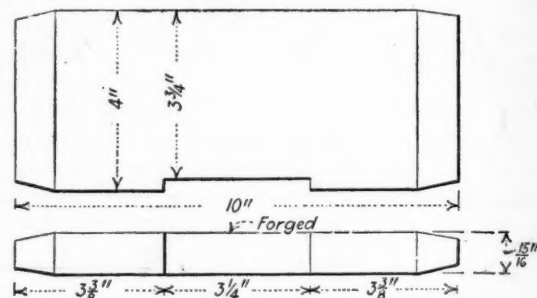


FIG. 6

FIGS. 5 AND 6. SQUARE-ROD BOLT FOR LARGE ENGINE

The head is rounded to receive thread, and the lower end is expanded and slotted for the reception of a cotter.

cotter, than it is to thread the rod and provide the necessary nut. Fig. 4 shows an anchor bolt of this kind complete in position in a foundation with its anchor plate and cotter in place. The proportions of a line of bolts and cotters that have given satisfactory service in practice are shown in Table II.

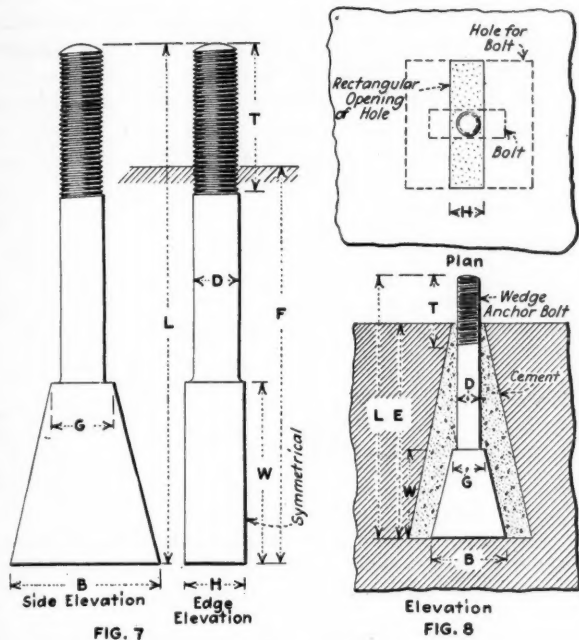
As to the strength, the cotted extremities of the bolts (not having upset ends) proportioned as indicated in Table II up to 2 in. in diameter will have a tensile strength practically equal to that of the bolt itself. For diameters larger than 2 in., cotted ends will have strengths from 10 to 20 per cent less than those of the bolts. If the strength of the cotted end

TABLE I. RESISTANCE TO WITHDRAWAL OFFERED BY BOLTS SET IN SULPHUR, LEAD AND PORTLAND CEMENT

Bolts set in	1-in. Bolts in 1 1/2-in. holes	1-in. Bolts in 1 1/2-in. holes
Sulphur	Developed full strength, 16,000 lb.	
2	Developed full strength, 16,000 lb.	
3		Pulled out under 12,000 lb.
4		Developed full strength, 31,000 lb.
Lead	Developed full strength, 16,000 lb.	
2	Developed full strength, 16,000 lb.	
3		Pulled out under 13,000 lb.
4		Developed full strength, 31,000 lb.
Neat Cement	Broke without pulling out.	
1	Broke without pulling out.	
2	Broke without pulling out.	
3	Broke without pulling out.	
4		Broke without pulling out.
5		Broke without pulling out.
6		Commenced to yield at 26,000 lb. but sustained load a few seconds and then broke.

of large bolts must be equal to that of the bolt, the end must be upset accordingly. The reason that the cottered ends of small-diameter bolts have practically the same tensile strengths as the bolts themselves is that the amount of metal removed from the cotter slot is just about equivalent to that removed in cutting threads at the top.

Cotter anchor bolts of square rod can be made as shown in Fig. 5. Anchor bolts of this type have been used extensively in steel mills where only rods of square section are rolled. A cotter like that shown in Fig. 6 is used in the lower end of the bolt to bear against the anchor plate. The original square section of the rod is retained for the major diameter of the bolt at its lower end, but a part of the upper end of the



FIGS. 7 AND 8. WEDGE ANCHOR BOLTS

After the bolt has been lowered into the hole with the greater width of the wedge parallel to the greater length of the opening, it is turned so as to rest in a position athwart the lesser dimension of the top of the hole. It is then grouted into place.

rod is forged to a round section so that it will pass through the circular holes in the machine bedplate and so that it can be threaded.

Wedge anchor bolts have been used to some extent for fastening small machines to existing foundations where no provision was originally made for anchoring. These are applied only where the foundation is shallow, and where sufficient strength cannot be obtained by grouting a bolt in place as shown at Fig. 2. Fig. 7 shows one of these bolts, the dimensions for which are given in Table III. In Fig. 8 is indicated the method of installation.

These bolts are particularly useful where they must be set in a capstone of granite or hard limestone. The hole for each is cut wedgeshaped in the masonry, as shown in Fig. 8, with a stone-mason's chisel. It has a rectangular opening at the top which will admit the flared end of the bolt when this is turned to the proper position. After the bolt is inserted in the hole it is turned until the diverging surfaces of its enlarged end are parallel with the slanting sides of the hole. Then cement or sulphur is poured into the hole around the bolt, completely filling it. It is asserted that when a bolt is installed in this way, provided its proportions

are about those indicated in Table III, it will develop its full strength before it can be withdrawn.

Expanding end or "fox tail" bolts are sometimes used as anchors. These are similar in action to the wedged end bolts but may be set in a circular hole. They consist of an ordinary rod threaded at its upper and slit for several inches at its lower end. Into the slit end the point or tip of a suitable wedge is inserted. The bolt thus formed is now placed in the hole that has been drilled for it until the end of the wedge strikes the bottom. It is then driven on down over the wedge by means of a hammer and block of wood or with a club, maul or mallet either of wood, leather, rubber, lead, copper or other soft material. After it has been driven down to place cement grout, lead or sulphur is poured around it and allowed to harden or set. This

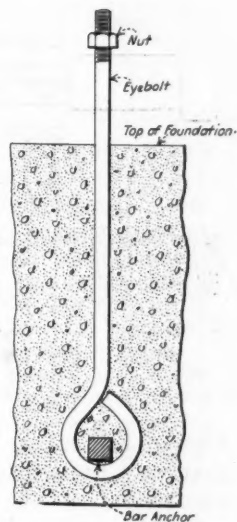


FIG. 9. EYE OR STIRRUP BOLT

A bar passed from eye to eye of adjacent bolts adds to their holding power.

TABLE II. DIMENSIONS OF COTTER ANCHOR BOLTS AND COTTERS

D	C	B	E	F	G	H	*T
[Diameter of Bolt, Inches]	Width of Slot, Inches	Length of Slot, Inches	Length of Cotter, Inches	Length of Niche, Inches	Effective Width, Inches	Overall Width, Inches	Thickness of Cotter, Inches
1	1/2	1	1 1/2	2	1	1 1/2	1/2
1 1/4	5/8	1 1/4	2 1/4	2 1/2	1 1/4	1 3/4	5/8
1 1/2	3/4	1 1/2	2 3/4	2 3/4	1 1/2	1 3/4	3/4
1 3/4	7/8	1 3/4	3	3	1 3/4	1 3/4	7/8
2	1	2	3 1/2	3 1/2	2	2	1
2 1/4	1 1/8	2 1/4	4	4	2 1/4	2 1/4	1 1/8
2 1/2	1 1/4	2 1/2	4 1/2	4 1/2	2 1/2	2 1/2	1 1/4
2 3/4	1 1/2	2 3/4	5	5	2 3/4	2 3/4	1 1/2
3	1 3/8	3	5 1/2	5 1/2	3	3	1 3/8
3 1/4	1 3/4	3 1/4	6	6	3 1/4	3 1/4	1 3/4
3 1/2	1 7/8	3 1/2	6 1/2	6 1/2	3 1/2	3 1/2	1 7/8
3 3/4	2	3 3/4	7	7	3 3/4	3 3/4	2
4	2 1/8	4	7 1/2	7 1/2	4	4	2 1/8
4 1/4	2 1/4	4 1/4	8	8	4 1/4	4 1/4	2 1/4
4 1/2	2 1/2	4 1/2	8 1/2	8 1/2	4 1/2	4 1/2	2 1/2
4 3/4	2 3/4	4 3/4	9	9	4 3/4	4 3/4	2 3/4
5	3	5	10	10	5	5	3
5 1/4	3 1/4	5 1/4	11	11	5 1/4	5 1/4	3 1/4
5 1/2	3 1/2	5 1/2	11 1/2	11 1/2	5 1/2	5 1/2	3 1/2
5 3/4	3 3/4	5 3/4	12	12	5 3/4	5 3/4	3 3/4
6	4	6	13	13	6	6	4
6 1/4	4 1/4	6 1/4	14	14	6 1/4	6 1/4	4 1/4
6 1/2	4 1/2	6 1/2	15	15	6 1/2	6 1/2	4 1/2
6 3/4	4 3/4	6 3/4	16	16	6 3/4	6 3/4	4 3/4
7	5	7	17	17	7	7	5
7 1/4	5 1/4	7 1/4	18	18	7 1/4	7 1/4	5 1/4
7 1/2	5 1/2	7 1/2			7 1/2	7 1/2	5 1/2

* The cotter must actually be a trifle thinner than the dimensions shown in this column, so that it will fit into the slot C.

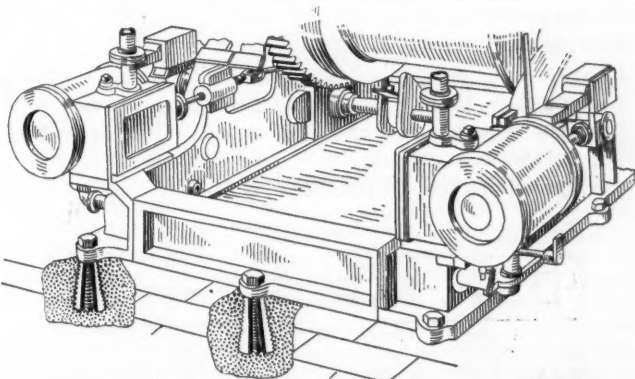


FIG. 10. EXPANSION ANCHORS ON HOIST BED
The lag screws turn into expansion anchors, spreading them so as to give a wedge grip. See Fig. 11.

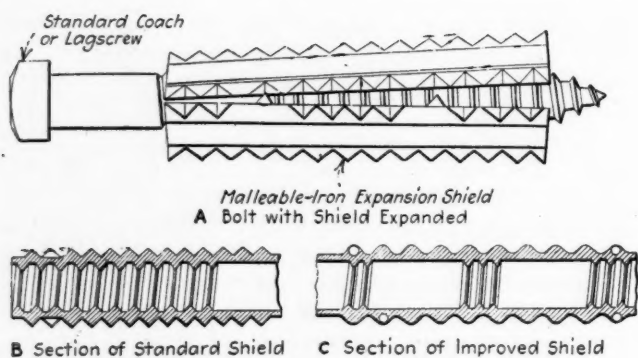


FIG. 11. MALLEABLE-IRON EXPANSION SHIELD
The improved shield (C) permits lag screws of slightly varying pitch to be used satisfactorily.

type of bolt makes an anchor of great holding power that may be inserted directly through the bedplate if necessary.

Stirrup anchor bolts, Fig. 9, are in reality merely a type of deformed bolts. They can be used to good advantage under the same conditions as those to which deformed bolts are suited. However, a bar anchor can be placed through the eyes of a series of stirrup bolts that are set in line. This increases the resistance to withdrawal of every bolt in the series. Furthermore, the bar lying in the eyes of the bolts maintains their lower ends in proper alignment and tends to keep them all in a vertical position while the concrete is being poured. The bar running through the eyes may be of round or square iron, or it may be a length of wrought iron pipe, a small T-rail or some other shape.

Expansion anchors, as shown in Fig. 10, are sometimes used where the bolts will not be subjected to severe stresses. These are applied where it is necessary to secure a machine bedplate to existing masonry. An expansion anchor consists, as shown in Fig. 11, of two shell-shaped castings with threads on their inner surfaces so proportioned that a lag screw, when turned down into the shells which previously have been placed in the hole, will push them apart and cause them to grip the sides of the hole. These anchors take a firm grip on soft masonry like brick work, but for concrete or hard stone the expansion bolts described later are preferable.

Two kinds of expansion shields are on the market, as shown in Fig. 11 at B and C. That of B will engage accurately coach or lag screws of only one pitch. Inasmuch as the various manufacturers of such screws have adopted pitches somewhat different (that is, number of threads per inch) for the same diameter of screw, shields made like that of Fig. 11B cannot be depended upon to fit any lag screws that may be purchased. If shields like those shown at C are used, however, lag screws of any pitch ordinarily employed will engage them. It is desirable, of course, when purchasing expansion shields, to obtain those that any lag screw will actuate.

Expansion bolts (Figs. 12 and 13) are used to meet

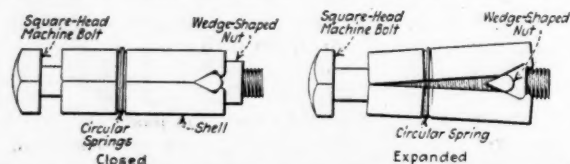


FIG. 12. SINGLE-SPREAD TYPE OF EXPANSION BOLT
The wedge-shaped nut opens up the jaws at one end of the shield, being resisted by circular springs.

TABLE III. DIMENSIONS OF WEDGE ANCHOR BOLTS

D Nominal Diameter of Bolts, Inches	E Minimum Length in Foundation, Inches	T Length of Thread, Inches	W Length of Wedge, Inches	B Base of Wedge, Inches	G Top of Wedge, Inches	H Thickness of Wedge, Inches
1/2	5	1 1/2	2 1/2	1 1/2	1 1/2	1 1/2
3/4	6	2	3	2	2	2
1	7	2 1/2	3 1/2	2 1/2	2 1/2	2 1/2
1 1/4	8	3	4	3	3	3
1 1/2	9	3 1/2	4 1/2	3 1/2	3 1/2	3 1/2
1 3/4	12	4	5	4	4	4
2	13	4 1/2	5 1/2	4 1/2	4 1/2	4 1/2

conditions similar to those for which expansion anchors may be applied. Such bolts, however, appear to hold better in hard masonry. If they are of sufficient length and properly installed, they effectively sustain static loads. They cannot, as a rule, be depended upon to resist vibrating or reversing stresses. Fig. 14 illustrates the principle and the method of installation of expansion bolts. A hole of a diameter just sufficient to admit the anchor is drilled in existing masonry, and into this the anchor is inserted. The bedplate of the machine is next put in place, so that the hole in the bedplate and the hole in the anchor already in the masonry are in line. The bolt is next turned down into the anchor, and as it is revolved a wedge-shaped nut is drawn along the bolt. As the nut is moved it thrusts the two shields of the anchor apart, as shown at B, Fig. 14. A small circular spring normally holds the two shields of the anchor loosely together.

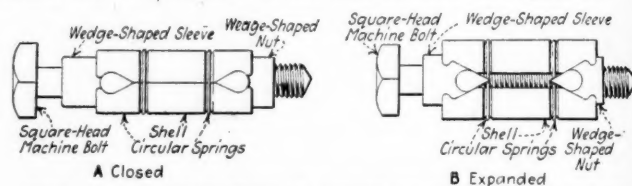


FIG. 13. DOUBLE-SPREAD TYPE OF EXPANSION BOLT
By having two wedges which approach each other on turning the bolt, the shield is spread so as to give it a large diameter such as will afford a big shearing area to resist removal.

Two types of expansion bolts similar to that just described are procurable: The single-expansion (Fig. 12), and the double-expansion types (Fig. 13). In the single-expansion type only the lower ends of the anchor shields are thrust outward by the bolt. With the double-expansion type, however (Fig. 13), the two shields are thrust apart equally at both top and bottom. They thus always lie approximately parallel with each other and secure a better and more even grip. The double bolts are used particularly for brick and cement work and are approved by government engineers.

The wedge used on all these expansion bolts is pear-shaped and bears notches into which projections on the shields fit. This device prevents the parts of the shields from becoming separated and lost, and maintains the nut in position while the bolt is catching its thread. The diameter of an expansion bolt is understood to be the diameter of the bolt itself and not that of the outside of the shield or of the expanding parts.

The length of a bolt of this kind required for any particular installation may be ascertained by adding together (1) the thickness of the bedplate, (2) the thickness of the grout, (3) the length of the shield. The standard lengths of these shields for the different diameter bolts may be found in manufacturers' catalogs.

The holding power of expansion anchors and expansion shields is a quantity difficult to determine accurately, because to a great extent the method of installation determines this quantity. If maximum

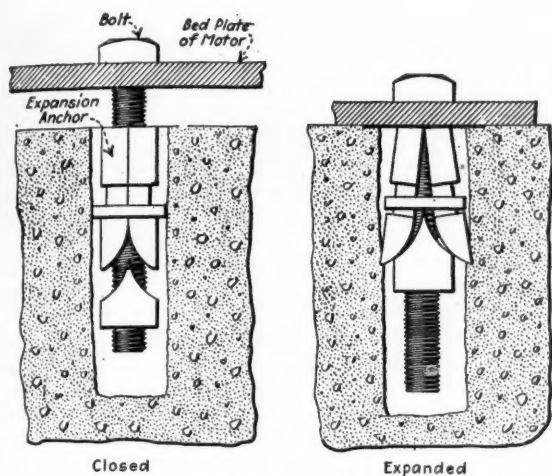


FIG. 14. SINGLE-SPREAD ANCHOR BOLT IN POSITION

The lag screw can be turned till the shield grips the sides of the hole tightly. When the grouting sets a firm hold is assured.

strength is to be attained, the hole for an anchor or shield should always be of such a diameter that it will just receive the shield. Furthermore, if possible, the hole should be slightly greater in diameter at the lower end than at the orifice. Under these circumstances if a bolt of the proper length is employed and is screwed up tight, experience has indicated that the masonry if of the nature of brickwork will fail before the bolt will break or be withdrawn.

In ordinary rubble such as that built from field stone, the shield being set in the stone and not in the mortar or cement and properly embedded as above suggested, the weak member probably will be the nut on the bolt. The threads on the nuts are apt to strip if extreme tension be applied to the head of the bolt. The same conditions, of course, obtain in the case of any hard stone, such as granite. It frequently occurs, however, that such an expansion bolt, anchor and all, will pull out of a hole in hard stone before the threads strip. This condition arises from an improper setting of the bolt.

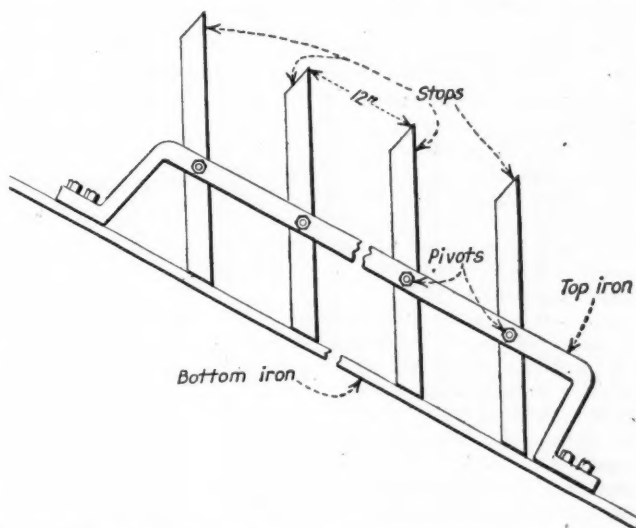
Pivoted Iron Bars Protect Cars on Grade

MANY have been the devices to arrest or stop the movement of runaway cars upon inclined pieces of track. The drag on the end of the car and the beam

heavier at one end than at the other and so pivoted as to be depressed by the car passing over it, to return to normal position after its passage, are familiar forms.

The Diamond Coal & Coke Co. at its Diamond mine, near Brownsville, on a short but steep grade up which cars are drawn by a chain haul has installed a modification of the pivoted-beam stop. The grade is here so steep that should a car slip from the grip of the dog it might cause appreciable damage if its movement were not promptly arrested. A series of slanting iron bars each $\frac{1}{2} \times 2$ in. in section are pivoted in a frame made by strap iron of the same size of stock. This frame, as may be seen in the accompanying illustration, is D-shaped, the front member of the D being bolted to the floor. The bars are so set that when standing in normal position their tops will engage the car axles.

Cars moving up the slope depress these bars in succession, returning to normal or operating position after



MODIFIED PIVOTED-BEAM STOP FOR RUNAWAY CARS

the car axle has gone by. As these hinged bars are placed one foot apart the greatest distance that a car could travel backward, should it break away from the chain dog, would be small. The safety of the equipment and the men working around it is thus assured.

Would It Pay to Stock Screenings at the Mine Until Market Improves?

THERE is much interesting discussion just now relative to a need for a better method of mining and marketing coal in eastern Kentucky. In producing prepared sizes, the operators frequently have trouble in disposing of screenings, especially when the industrial demand for steam coal is poor.

During recent weeks Hazard screenings have been quoted down to 80c. a ton at the mines, the producers having to dispose of them at any price to keep demurrage from eating up the value of the coal. Such conditions naturally force down the market on all screenings in that and neighboring fields, even when the latter have no excess production of screenings, and it also makes for a weak market on mine-run.

It has been suggested that the producers, instead of loading their screenings out on a weak market when there is no demand to speak of for steam coal, put in conveyors and concrete bins with chutes, so that the fine coal be con-

veyed from tipple directly to these bins, from which it could be later chuted into cars when there was a demand for steam coal.

There are, of course, several objections to the idea—first, that it would take a good deal of money, to install the concrete work necessary, or if the coal was just dumped above ground, it would mean an outlay of \$15,000 to \$20,000 for a locomotive crane to again pick it up and load it, and additional expense for conveyors. Of course, this would be offset by a better market at time of selling, but another drawback is that when there is a good market for coal, there generally is a shortage of cars in which to load it, and the mine has trouble enough in obtaining cars for its daily output of higher grades or straight mine run.

Screenings sold for \$8 to \$9 a ton a year ago, and, while there is not much prospect of another high market like that of last year, there should be some more good markets for screenings, when the present slump is past. It would seem, therefore, that the larger producing companies could afford to put in the necessary equipment for stocking screenings as it would eventually yield paying returns on the investment.



Problems of Operating Men

Edited by
James T. Beard



What a Mine Superintendent Should Be and Know

The Mine Superintendent Should Be Four-Square, Know Himself as Others Know Him; Take Inventory of His Qualities and Measure Himself by Others' Standards

WE HAVE been reading much in *Coal Age* on the question of what constitutes an efficient mine foreman. It goes without saying that if ever a mine foreman is found who possesses the multifarious qualifications that have been described as his requirements he would make a good subject for a dime museum.

Be that as it may, I have come to think that the honest, hard working mine foreman has had his share of the limelight and that the subject might now well be changed and the question asked, What constitutes an efficient mine superintendent?

My appeal is to mine foremen, whose weaknesses and shortcomings have been so profusely displayed and whose aptness to imitate rather than to initiate, ruthlessly held up to view, giving these as reasons for the assumed failures of foremen to make good; speak up now, men, and let it be known what is your estimate of a worthwhile mine superintendent.

THE FOREMAN KNOWS HIS SUPERINTENDENT

No one knows the superintendent of a mine better than the foreman who is in daily touch with his qualities and achievements. He has come to understand where the superintendent is weak and what are his shortcomings. It is not strange, therefore, that the picture many a mine foreman can draw of his superintendent would cause the latter to sit up and take notice.

A wise superintendent would at once measure himself by the standards of others, take inventory of his qualities and put them to the highest possible use. It is well known, if frankly admitted, that the efficiency or inefficiency of a foreman is the exact counterpart of the same qualities in his superintendent.

After all, we must admit that our state mining laws are largely at fault. They compel a mine foreman to hold a certificate of competency obtained by passing an examination before a competent board of examiners. At the same time, the law makes no such requirement regarding the mine superintendent, who directs and to a large extent controls the work in charge of the foreman.

This being true, it is clear that if any man, other than the mine foreman and fireboss in charge of mining operations, needs efficient training and education in the science and art of mining surely it is the mine superintendent. In my opinion, every mine superintendent should be a certified man who is able and willing to share the burdens of his foremen.

THE SUPERINTENDENT "FOUR-SQUARE"

To insure successful operation, the mine superintendent must be "four-square," so to speak, facing as he does the requirements of the management and the men and handling as he must the problems of the business as well as the operating end of the organization. His qualities must be such that he will gain and hold the confidence of all associated with him.

It is unnecessary to repeat here what has been so often said by writers in *Coal Age*, that a superintendent must refrain from making promises that he may be unable to keep. He must use plain practical common sense in his arguments and decisions. He must trust his men, that they may come to have a like trust in him. What Pope, in his "Essay on Man," has said let us all remember:

"Work Makes the Man, the Want of it, the Fellow."

Let me sum up by repeating with emphasis that the worth while mine superintendent is the man who, in obedience to the ancient mandate, "Study to Know Thyself," takes daily inventory of his qualities as viewed with the other fellow's eyes.

EDWIN HUSBAND.

Carbonado, Wash.

Smoking and the Duty of the Safety Committee

Authority of the Safety Committee to search fellow workers in the mine, under suspicion that they have in their possession articles for smoking.

THAT it should be necessary to debate the question of smoking pipes or cigarettes in a mine generating gas, shows how lightly this important matter is regarded by many miners who should consider such an act as a grave

crime against their fellow workers, their employers and the mining laws of the state.

When one reflects on the awful toll of human life demanded by a gas or dust explosion in a mine the very thought of men taking the chance of smoking where gas is given off appears as foolhardy. The fact that miners will take these chances, however, makes it important to adopt effective measures to stop them.

In most gaseous mines it is the practice to search every man going into the mine, to see that they have no matches, pipes, tobacco or other like articles. At some of these mines, the rule is not put in force every day; but the men are searched, from time to time, as the management may consider necessary.

Where the custom of search is thus irregular men who are given to the smoking habit are prone to take many chances and carry with them into the mine what they need for smoking, days that they have reason to believe they will not be searched. A man may carry a supply of tobacco into the mine one day, matches another day, and keep a pipe safely stowed away in his working place.

INCREASE OF SMOKING HABIT CALLS FOR EFFECTIVE MEASURES

Careful observation shows that the smoking of cigarettes has been on the increase since the return of our soldiers from the war. It would seem that nine out of every ten men who went over have gained this habit, besides becoming case-hardened to danger. In addition to such, there is the class of old miners who are wedded to their pipe and tobacco. Under these conditions, eternal vigilance must be practiced by all concerned.

The mine law on this subject is plain and all that is required is its enforcement. In order to secure greater immunity from possible explosions due to the practice of smoking in mines, my thought is that Mine-Safety Committees should take this matter in hand. For what purpose are these committees appointed if it is not to eliminate all unsafe practices among the men.

Allow me to suggest that, in every gaseous mine, the safety committee should be given authority to thoroughly search any person in the mine whom they may suspect of having about him articles for smoking. If their suspicion is proved correct they should be empowered to conduct the man at once out of the mine and report him to the mine superintendent or other authority.

My belief is that this would be a more effective means of putting a stop to the practice of smoking among the men, while they are in the mine, than any other measure it is possible to adopt. The smoker may succeed in smuggling into the mine what he needs to satisfy his purpose; but it will seldom happen that he will be like successful in eluding the watchful eyes of members of the safety committee.

The prosecution of violators of the law in this respect would be greatly assisted if men on the safety committee were called to witness against the violator.

R. W. LIGHTBURN.

Gans, Pa.

Surrender to Discipline

A hopeful characteristic of the unskilled miner is his ready surrender to discipline. It explains largely why accidents more frequently befall the skilled miner.

DISCUSSING the question of skill in mining coal, W. M. Chambers emphasizes the value of the "years of experience," which he seems to regard as the particular safeguard of the skilled miner, *Coal Age*, May 19, p. 912.

It is quite true, as Mr. Chambers has remarked at the close of his letter, that "practical skill in the mining of coal is fast disappearing from our mines." The reason for this is not hard to find. In my opinion, it is due chiefly to the increase of machine mining, which requires only unskilled labor to load the coal after it has been shot down by the shotfirer.

In stating that "the chief, if not the only qualification of a miner, is strength of back that will enable him to wield the shovel all day," Mr. Chambers bears mute testimony to the rapid growth of machine mining.

My purpose in writing, however, is to draw attention to that characteristic of the so-called "unskilled miner," that causes him to surrender to discipline and makes him much less the victim of accident than the man whose experience in mines leads him to disregard all instructions and often omit to take the simplest precaution for his own safety.

THE MAN WHO GETS CAUGHT

In response to the foreman's request to set a post under a doubtful piece of top, the experienced man will generally reply, "Yes, I'll do that when I finish loading this wagon. I would have had that post up some time ago had not the driver set me in a car."

This is the type of man whom, we all know, is the one who most frequently gets caught. He considers himself as good a judge of the condition of the roof in his place as the foreman and, indeed, better because he is there all the time and the foreman visits the place seldom more than once a day.

My own experience has convinced me that the willingness of the unskilled miner to do as he is told and to do it without delay, is a most hopeful characteristic. In the loading of coal, this type of miner gives more evidence of

being mindful of his own safety and is more careful to follow the instructions given him than the experienced miner.

In preparing a charge of powder, the unskilled man does as he has been directed, taking every precaution without a thought of doing it his own way. In other words, he surrenders himself to discipline and is a better subject for training, giving more promise of making a safe miner.

I much prefer to take the unskilled man and teach him the safest and best methods of doing his work, than to attempt to look after the miner whose long experience makes him a law unto himself. In his letter, Mr. Chambers asked, "will a green man be able in a short time to discern these conditions that surround him in his work and to know when he is in danger and must take precaution to safeguard himself?" My answer is, he will.

Observation shows that the miner who submits to discipline seldom fails to prove himself a safer man and will, in time, become skillful in the work of mining coal safely and economically. The fact that this type of miner is less subject to accident speaks volumes for the careful supervision and instruction given him by his foreman. On the other hand, too often the foreman is unjustly blamed when a skilled miner is injured or killed.

These facts prove my contention that the chief element of safety, in the mining of coal, is the miner's surrender to discipline, which is more characteristic of the man who has everything to learn than the one who knows it all and can be told nothing.

R. W. LIGHTBURN.

Gans, Pa.

Safe Practice in Gaseous Mines

Commenting on numerous practices relating to safety in the use of lamps, manner of conducting air currents, character of mine gases and duties of mine officials in matters not specified in the mine law.

SPEAKING of safety requirements in Tennessee coal mines, *Coal Age*, May 26, p. 956, Oscar H. James makes certain references to which exception may well be taken. One point that attracted my attention was the preference he expresses for the use of locked safety lamps, in a mine generating gas, instead of choosing to equip the mine with electric cap lamps, giving as his reason that the electric lamp gives no indication of the presence of noxious gases.

Mr. James states that he has seen men working to the dip overcome by blackdamp before they were aware of its presence, as their electric lamps gave no warning of the danger. To my mind, any experienced miner will know when the air he is breathing contains a dangerous amount of blackdamp.

It is well known that blackdamp is a mixture of carbon dioxide, nitrogen and a percentage of oxygen below the normal. Men can work without serious difficulty when from 4 to 6 per

cent of carbon dioxide is present in the air, which reduces the oxygen content from 20.9 to 19.6 per cent.

When air is passing through a mine, it is rare for the oxygen content to fall below this point. If the air becomes stagnant in a poorly ventilated place, however, the oxygen content may fall to 18 per cent; but the miners working there would know the bad condition of the air and get out. An oil lamp is completely extinguished in otherwise pure air containing but little more than 16 per cent of oxygen; but if carbon dioxide is present the lamp goes out with but 18 per cent of oxygen.

If the mining laws of Tennessee require the circulation of 100 cu.ft. of air per minute, for each man, and 600 cu.ft. per min., for each mule in the mine, I fail to see how a dangerous condition can exist in those mines that would argue against the use of the electric cap lamp.

ELECTRIC CAP LAMPS SUPERIOR TO LOCKED SAFETY LAMPS

On the other hand, many mining men in Colorado can name numerous conditions that occur in these mines and render a locked safety lamp far more dangerous for use than the electric lamp. Many instances can be named in which the lives of our men have been saved by the use of the cap lamp, where they would have been fatally burned had they been working with a locked safety lamp.

We all know that the safety lamp is easily extinguished by being set down too hard on the floor, or turned over on its side; and the man must travel in the dark until he can find a light. While not questioning Mr. James' experience in gaseous mines, I feel that a trip through some of our Colorado mines would change his opinion in respect to the use of these lamps.

In the course of his remarks, Mr. James refers to a previous writer who discussed the question of whether a fireboss violated the mine law when he permitted the air returning from a pair of entries generating gas and requiring the use of safety lamps, to pass out through five rooms where open lights were in use.

My own opinion expressed in that discussion, was that the law was not violated, *Coal Age*, Vol. 18, p. 1192, inasmuch as the reading of the law apparently allowed the use of open lights in the rooms mentioned, notwithstanding the recognized danger of so doing.

My belief is that, in this particular case, the gas generated at the head of the entries was not sufficient to render the air current explosive or dangerous; but safety lamps were used at the faces of those headings to prevent the men from being burned by the ignition of the gas before it was sufficiently diffused in the current.

Mr. James takes exception to the idea suggested by another writer, in the same connection, Jan. 6, p. 22, that it would have been better to have carried the air by an overcast, across the return entry, directly into the five rooms

mentioned, thus giving them a fresh supply of air and making them safe.

Let me say this is a wholly practical idea. The amount of air taken from the main intake current will not materially affect the condition at the head of the two entries. Neither will the building of the overcast weaken the pillars. In such a case a temporary box is carried through the stopping and extended across the return airway into the last room inby.

If Mr. James has reference to mines generating noxious gases that are not inflammable, the use of open lights would be found preferable. But, for use in explosive gas, the Bureau of Mines has approved the electric cap lamp as a safe means of lighting, basing this conclusion on the analyses of mine air taken from a hundred different coal mines in this country.

In commenting on the uncertain meaning of the bituminous mine law relating to the use of open lights on an air current returning from a section where locked safety lamps are in use, Mr. James expresses the belief that "where the state mining law does not clearly specify the requirements necessary to make a mine safe, it is the duty of the mine officials, the superintendent, foreman and fireboss, to make and enforce regulations that will accomplish this end."

Let me say, that procedure has been tried for fifty years past, in this country, with the result that it became necessary to have our mining laws specify clearly every requirement necessary to make the mine safe. In my opinion, where the law does not clearly so specify, no rules or regulations made by mine officials will be effective.

The state enacts the mining laws for the protection of its miners. Mining companies expect their officials to get out the coal with due regard to safety, but get it, they must. My comment is, Don't ask any mine official to go beyond what is required in the law, which is thought to be complete and clear.

Farr, Col. ROBERT A. MARSHALL.

Safe Refuge Holes

Mouths of rooms do not make safe refuge holes, though permitted to be used as such by some state mining laws. Need of shelter holes between rooms turned off haulage roads.

SPECIAL interest attaches to the matter of safe shelter holes on haulage roads, discussed by Joseph Northover, *Coal Age*, May 5, p. 825, since it relates to an item that stands second in the classification of mine accidents.

The monthly statement of the U. S. Bureau of Mines shows that mine cars and locomotives stand second only to falls of roof in the classification of the causes of accidents occurring in coal mines. Considering the tendency to use larger cars and employ mechanical haulage, in the movement of coal from the working face to the shaft bottom, the matter of shelter holes on haulage roads grows in importance each year.

Even assuming that accidents due to the movement of cars are not increasing at the present time, it must be admitted that there is room for improvement in prevailing conditions. The mining laws of some states (Illinois and Pennsylvania, bituminous) require no refuge holes on haulage roads from which rooms are turned at regular intervals.

As stated by Mr. Northover, there is considerable danger to a man standing in a room mouth to escape being run down by a trip passing on the roadway. It may chance that the cars may turn into the room where he is standing or a loaded car may get loose at the face and run down to the entry.

I agree fully with the statement that it would be a big step toward safety to have a regular refuge hole cut in the rib between each two successive rooms, and not depend on the mouths of the rooms being safe and unobstructed. It is by giving attention to

little things like these, that the number of accidents on haulage roads will be reduced.

One point that has not been mentioned in this connection, is the possibility of bad roof conditions in refuge holes. This is particularly apt to be the case where it has been necessary to brush the roof on the road to secure the required headroom. Taking down the roof on the road leaves the roof in the refuge holes weak. I have known some operators to require a post set in every refuge hole to make the roof secure.

Before closing, let me say, there should be a manhole cut in the rib of every branch entry switch, particularly if the practice of making a flying switch is permitted. Also, a manhole should be cut at every trapdoor. Every refuge or manhole should be kept clear of all obstruction and whitewashed so that they can be readily found.

Pikeville, Ky. GEORGE EDWARDS.

Inquiries Of General Interest

Calculation of Corrected Course

Saving of Time and Effort, in This Case, by Calculating the Deflection of Each Separate Course, from an Assumed Meridian That Approximates the Average Direction of the Given Course

BEING desirous of a check on a disputed course in a survey, may I ask for its calculation and publication in the Inquiry Department of *Coal Age*? Following is a survey or random line run between two corners, A and B, and it is desired to calculate the corrected course from the first corner to the second.

The notes as taken from the surveyor's book are: A-1, azimuth 69° 33', distance 192.3 ft.; 1-2, 71° 25', 206.0 ft.; 2-3, 70° 43', 352.6 ft.; 3-4, 70° 48', 168.1 ft.; 4-5, 70° 53', 470.9 ft.; 5-6, 71° 57', 476.2 ft.; 6-7, 70° 43', 386.2 ft.; 7-8, 70° 40', 717.1 ft.; 8-B, 70° 16', 1,108.3 ft. The total length or distance of this random line is 4,077.7 ft. What is desired is the azimuth of a single course joining the two corners A and B.

—, W. Va. MINE SURVEYOR.

observed that the azimuths of the several courses vary very little from each other. In other words, the random line run between the corners approximates more or less closely the desired course. That being the case, the work is much simplified and shortened by basing the calculation on an assumed meridian whose azimuth is, say 70 deg.

The following table shows the given courses, azimuths and distances, together with the deflection of each course to the left or right of the assumed meridian.

Course	Azimuth	Distance	Left	Right
A-1	69° 33'	192.3	1.509	
1-2	71° 25'	206.0		5.092
2-3	70° 43'	352.6		4.411
3-4	70° 48'	168.1		2.347
4-5	70° 53'	470.9		7.261
5-6	71° 57'	476.2		16.205
6-7	70° 43'	386.2		4.831
7-8	70° 40'	717.1		8.347
8-B	70° 16'	1,108.3		5.154
		4,077.7		53.648
				1.509
				52.139

The regular method of calculation would be to find the latitude and departure of each of the several courses given. Then, the sum of the departures divided by the sum of the latitudes, these being all positive, will give the tangent of the bearing, or the azimuth of the line joining the two corners. Then, dividing the sum of the departures by the sign of this bearing will give the length of the line. The azimuth and distance thus found are those of the required corrected course.

In this particular case, however, it is

subtracting the single deflection to the left of the assumed meridian, from the sum of the deflections to the right, gives the net deflection to the right of that meridian, for the corrected course, viz., 52.139 ft. The angle this line makes with the assumed meridian is found, with close approximation, by dividing the net deflection by the sum of the several courses.

Thus, $52.139 \div 4,077.7 = 0.01258$, which is the sign of the required angle.

Therefore, the angle that the line joining the two corners bears to the right of the assumed meridian is $0^{\circ} 44'$, and the azimuth of the corrected course is therefore $70^{\circ} 44'$. The length of this course, within the allowable error of measurement in surveying, is given by the sum of the lengths of the several courses, 4,077.7 ft.

Evaporative Power of Coal

Power of coal to evaporate water at given temperatures estimated by the heat units absorbed by the water in passing into steam at the required pressure.

KINDLY inform me through the columns of *Coal Age* the possible evaporative ability of coal, per pound, when the water has a temperature of 212° deg., if the same coal will evaporate seven pounds of water having a temperature of 170° deg. F. STUDENT. Chattanooga, Tenn.

We understand this question as asking how many pounds of water will be

evaporated or steam generated, from and at 212° deg. F., using a coal that will evaporate seven pounds of water, per pound of coal, at atmospheric pressure, sea level, the temperature of the water being 170° deg. F.

The heat required to raise the temperature of a pound of water from 170° deg. to 212° deg. F. is $212 - 170 = 42$ B.t.u. Also, the heat absorbed, per pound of water, in generating steam from and at 212° deg. is 970.4 B.t.u. This makes the total heat absorbed in converting a pound of water at 170° deg. F., into steam at atmospheric pressure (sea level) $42 + 970.4 = 1,012.4$ B.t.u.

Since the coal in question evaporates seven pounds of water per pound of coal, under these conditions, the heat absorbed, which is the heating capacity of this coal, is $7 \times 1,012.4 = 7,086.8$ B.t.u., per pound; and the weight of water the coal will evaporate, from and at 212° deg. F., is $7,086.8 \div 970.4 = 7.3$ lb., per pound of coal.

It is assumed that all conditions relating to the burning of the coal and the distribution of the heat remain unchanged.

ber needed is not on hand. Make him understand that he must obey strictly and promptly any orders given him by an assistant foreman or fireboss.

QUESTION—What should your report contain after completing your inspection of a mine?

ANSWER—A fireboss' report must show the date of the examination and describe the character and location of any dangers that may have been found. The report must state clearly that every working place in his section has been examined and complies fully with the requirements of the law. The report must be signed by the fireboss making the examination and later countersigned by the foreman after the latter has read same.

QUESTION—How would you render first-aid to a sufferer from electric shock, powder burns, or leg fracture?

ANSWER—For electric shock, having released the person from contact with the wire, lay him down in a safe place, putting a coat or other garment under his shoulders, to elevate the chest and lower the head. Proceed at once to give artificial respiration if the person is unconscious. Keep the body warm while awaiting the coming of the doctor, who should be summoned at once. Continue artificial respiration without cessation until the return of life is manifest. As soon as breathing is restored and the patient is able to swallow, a slight stimulant or a sup of hot coffee should be given him. On recovering from shock the person will be nervous and should be kept quiet and given absolute rest, until his recovery is complete. On his return to life, the patient's limbs should be well rubbed to induce circulation, rubbing both arms and legs toward the heart, keeping them covered with blankets for warmth.

For powder burns, apply picric-acid gauze, in the form of a compress, bandaging it over the burned surface. If this material is not available, apply a paste of bicarbonate of soda made in clean water. Starch or flour will answer the same purpose. Vaseline, either carbolized or pure, olive or castor oil, fresh lard or cream are all good for protecting the burned surface from the air. The application should be covered over with a light cloth to exclude the air and dirt. For severe burns a doctor should be summoned.

To treat a broken leg, hold the foot carefully and make an effort to place the leg in as comfortable a position as possible. Be careful to avoid any quick movement or rough handling of the injured member. The bones on both sides of the fracture should be supported by placing the hand beneath the leg as it is moved. Two well-padded splints, reaching from the middle of the thigh to the sole of the foot, should be bound one on either side of the leg.

In all cases of serious injury to workmen there should be no delay in sending for a physician. First-aid treatment is only intended to afford temporary relief and protection from further harm or danger.

Examination Questions Answered

Examination, Foremen and Assistant Foremen, Fifteenth Anthracite District

(Hazelton, Pa., April 19 and 20, 1921).

QUESTION—What observations should a fireboss make on his second examination of the mine?

ANSWER—The fireboss should see that a place is properly ventilated, drained and timbered, the coal spragged and any loaded or empty cars standing in the place safely blocked. He should see that the miner is performing his work in the best and safest manner. He should see that no toolboxes or other obstructions are placed in the breakthroughs in rooms and entries. When traveling the roads he should observe that there is a proper clearance space at the side of the track and that this space and all refuge holes are kept clear and unobstructed. He should ascertain where a miner has stored his powder and caps, and note what supplies of props and caps are on hand ready for use when needed.

QUESTION—How many square feet of rubbing surface would there be in an airway 5×9 ft. and 1,200 ft. long? If, having 15,000 cu.ft. of air in circulation, the lamp shows $1\frac{1}{2}$ per cent of marsh gas in the return of this airway, how many cubic feet of gas is given off?

ANSWER—The rubbing surface of this airway is $2(5 + 9)1,200 = 33,600$ sq.ft.

Since the return current contains one-half of one per cent of gas or five parts of gas in one thousand parts of gas and air, there are 995 parts of air to five parts of gas. The proportion of gas to air is therefore $5 : 995$, or $1 : 199$. Therefore, the volume of gas given off, in this case, is $15,000 \div 199 = 75 +$ cu.ft. per min.

QUESTION—What instructions would you give a miner to secure him from falls of roof, drawslate and coal?

ANSWER—Instruct him to examine his working place before beginning work in the morning and especially on returning to his place after firing a shot. Also, to make no delay in taking down any loose top or setting the necessary timbers to make it secure. Also, caution him to frequently sound the roof above where he is working. When working under drawslate, a miner must not fail to keep this well supported with posts. In mining his coal, he must set sprags to support the coal, at distances not greater than 5 or 6 ft. apart, depending on the nature of the coal. Each miner should be instructed to keep on hand a good supply of props and caps, in his place, ready for use when needed. He should be told that he must not work his place if the tim-

Explosives Used in Mining During 1920

ACCORDING to preliminary reports made by the U. S. Bureau of Mines on the amount of explosives used in the United States during 1920, with mining specially classified, the totals for all purposes are:

Black powder, 10,195,193 kegs of 25 lb. each; permissible explosives, 53,962,841 lb.; other high explosives, 229,112,084 lb.

In coal mining alone the consumption was: Black powder, 8,790,505 kegs; permissibles, 45,222,130 lb.; other high explosives, 37,273,255 lb.

In anthracite mining alone the consumption was: Black powder, 923,423 kegs; permissibles, 8,558,690 lb.; other high explosives, 19,278,375 lb.

Based on the official anthracite production of 89,100,000 net tons for 1920, this meant a consumption of 0.5714 lb. of explosives per net ton, equivalent to 10.24 oz. of explosive per gross ton of coal produced.

Based on the official records, the total production of bituminous coal in 1920 was 556,563,000 net tons, in the mining of which there was used 251,335,370 lb. of explosives of all sorts, equivalent to 0.4514 lb. per net ton, or 8.667 oz. per gross ton.

According to the tonnage figures used by the Bureau of Mines, anthracite constituted 13.8 per cent of the total American coal output in 1920. In the same year the anthracite industry consumed 10½ per cent of all the black powder used in coal mining, 18.04 per cent of the permissible explosives, and 51.7 per cent of the other high explosives.

Based on quantity alone, without any weight being allowed for the variation in prices per pound for different explosives, this single item in the cost of producing anthracite is more than 15 per cent greater per ton than it is in producing bituminous coal. This difference would be much greater if accurate calculation were made of the varying prices of different classes of explosives.

Mine Fatalities Lower in March; Ratio of Deaths to Output Higher Than Last Year

ACCORDING to reports received by the U. S. Bureau of Mines from the various state mine inspectors, 127 men were killed during March, 1921, in and about the coal mines of the United States, as compared with 181 killed in March, 1920. Thus the 1921 figures show a decrease of 54 fatalities, or about 30 per cent, from the record of the corresponding month of last year. The output of coal fell from 54,689,000 tons in March, 1920, to 37,342,000 tons during the corresponding month this year, a decrease of 17,347,000 tons, or 32 per cent; attributable almost entirely to lack of demand. Based upon the production for March of last year, 3.31 lives were lost for each million tons of coal produced, whereas for March, 1921, the fatality rate was 3.40 per million tons mined.

On March 9, 1921, five men were killed by a gas explosion due to open light, at the Rahn mine No. 11, at Seek, Pa. The largest number of fatalities occurring in any state was in Pennsylvania, where there were 47 fatal accidents in the anthracite field and 8 in the bituminous districts. There were 17 fatalities in West Virginia, 10 in Illinois, 10 in Ohio, 9 in Alabama and 7 in Kentucky.

The average number of lives lost during March of each year from 1913 to 1920 has been 209. The production of coal has averaged 49,324,125 tons, showing a fatality rate of 4.24 per million tons as representative of the month of March for the past eight years.

A Meeting and Exposition for Mining Men

A FEW years ago a number of sellers of equipment arranged a meeting in Charleston, W. Va., at which a number of engineer salesmen delivered addresses. The meeting was exceptionally successful. The salesmen knew which men could be depended on to talk on the subject without commending their own particular wares. A high standard of addresses was maintained.

Since then each year a convention has been held with

an exposition for the sellers of coal-mine equipment. The occasion is getting to be of interest beyond the State of West Virginia, as it has extended its scope already beyond the Kanawha and Logan valleys. This year it has received the endorsement of twelve coal operators' associations in West Virginia, Kentucky and Virginia. The event, which is known this year as the Huntington Coal and Industrial Exposition, will be held in the Chamber of Commerce Building, Huntington, W. Va., during the week of Sept. 19 to 24.

The exposition has been placed in the hands of H. F. Campbell, of the Chester I. Campbell organization of Boston, to manage for the Chamber of Commerce. The Coal-Mining Electricians and Mechanics Institute, which reorganized and changed its name to the West Virginia-Kentucky Association of Mine Mechanical and Electrical Engineers, April 23, 1921, will as usual hold its meeting concurrently with the exposition on Sept. 20 to 23. Herbert Smith is secretary-treasurer of the technical association mentioned.

New Inspectors in Northern West Virginia

PRELIMINARY steps were taken by the West Virginia Department of Mines to carry out the provisions of a recently enacted law increasing the mine-inspection force of the state and the number of inspection districts when on Thursday, June 11, a conference was held at Clarksburg, W. Va., between R. M. Lambie, head of the department, mine inspectors and operators of northern West Virginia.

There are to be seven mining districts in northern West Virginia as against six under the old law. Territory to constitute the new district will be taken from territory now in the districts which have headquarters at Grafton, Charleston, Clarksburg and Thomas. M. E. Quenon, who has heretofore been located at Charleston, has been placed in charge of the new district and will have his headquarters at Weston, W. Va., the division headquarters of the Charleston division of the Baltimore & Ohio. Of course the addition of a new district has necessitated an entire rearrangement of territory in northern West Virginia, some inspectors being relieved of some mines and taking on others.

Hereafter the following cities will be the headquarters for the various district inspectors: Thomas, Grafton, Clarksburg, Morgantown, Fairmont, Moundsville and Weston. Inasmuch as one additional inspector has been allotted to northern West Virginia, it is assumed that the other two new inspectors will be added in southern West Virginia territory. Districts in that part of the state have not so far been rearranged. Owing to the growth of the mining industry between 1919 and 1921, the number of inspectors, fixed at nineteen by the Legislature of 1919, was increased last winter to twenty-two. One of the twenty-two inspectors will inspect sand mines and quarries, most of which are in the Eastern Panhandle.

Since the act of the Legislature increasing the inspection force by three it is said that Chief Lambie of the Mine Department has received fully 500 applications for appointment as mine inspectors. It will be several weeks before he will make any appointment. The head of the department will not only be called upon to fill the positions created by the Legislature but also the vacancy created by the resignation of William M. Chapman, of London, Kanawha County, inspector of the 11th district, which is composed of parts of Boone, Fayette, Kanawha and Nicholas counties.

THE EXPORT TRADE DIRECTORY 1921-1922, the publication of the *American Exporter* (Johnstown Export Publishing Co., Penn Terminal Bldg., New York City, \$10, 1,036 pp.) is disappointing to one looking for information on companies and corporations engaged in the export of coal. In all, three pages of this book are devoted to coal exporters in New York. For the most part, the names are unfamiliar, and the list is decidedly incomplete. It is interesting to note that of the twenty-two firms listed six were established in 1919, six in 1920, and but seven prior to 1914. What this book lacks in completeness of detail it appears to have in the wideness of the range of information of value to exporters. It is well arranged, well printed and indexed, and the information is classified in almost every conceivable manner.

The Weather Vane of Industry

News Notes Chronicling the Trend of Industrial Activities on Which Depends the Immediate and Future Market for Coal

THE recovery of business, for which everybody has been hoping and waiting, according to the July review of business conditions by the National City Bank of New York, has not yet materialized. "No one's interest, the bulletin continues, will be furthered by an ostrich-like attitude which buries its head in undue optimism, and makes glowing predictions for the immediate future, predicated wholly on a magnifying of the favorable symptoms. It is easy enough, and pleasant enough, to lull anxiety by such a process of reasoning, but what is wanted now is a general realization of the obstacles that must be met and overcome, more than a light-hearted prevalence of optimism founded only on half truths.

"On the other hand, an attitude of unwarranted pessimism can be just as harmful, if not even more so. We know that our banking system is intrinsically sound, and that it has already proven its capability to withstand the shock of a period of extraordinary strain, and to emerge unscathed from the most difficult test imposed in many years. We know that our ability, as a nation, to produce the raw materials which our people need, and which the world must buy from us, has been in no wise dwarfed. We know, finally, that our industrial and business organization is geared for production not only ample for our own needs, but on sufficiently large proportions to make export on a considerable scale a vital necessity. . . .

"Recovery is certain to be slow. . . . It is primarily a question of adjustment between the various component parts in our economic structure. . . .

"Although the process of bringing the price of farm products and manufactured articles into equilibrium must be slow and even painful, the fact does not mean that everyone can sit down, fold their hands, and wait for some mysterious set of economic forces to make things normal again. The result will come most quickly through the combined efforts of everyone, and the sooner every man and woman in this country who either receives wages or pays wages realizes and operates on the basis that the unbalanced state of industry as regards compensations received by important bodies of people must be overcome, the sooner will the real, sound revival of business begin in earnest. It is important to *think* about the proposition, but it is utterly essential to *act* upon it."

Car Loadings Recede Slightly

A decrease of 253 in the number of cars loaded with revenue freight on American railroads during the week which ended on July 2, compared with the previous week, was shown by reports received by the Car Service Division of the American Railway Association from the rail carriers of the country. The total for the week was 774,808 cars, which was a decrease of 116,813 cars, compared with the corresponding week last year, but an increase of 31,582 cars, compared with the corresponding week in 1919. Com-

parisons with tabulations for the preceding week showed increases in the number of cars loaded during the week of July 2 with grain and grain products, coal, ore and merchandise and miscellaneous freight, but decreases in livestock, coke and forest products.

Silk Hosiery Plant to Start

The Durham Hosiery Mills, Inc., Durham, N. C., today officially announced that the company will put its silk hosiery mill recently erected in operation before the end of this month.

Locomotive Works Perking Up

The Baldwin Locomotive Works, according to information received from Philadelphia, has resumed operations on a three-day-a-week schedule. This is similar to the schedule which prevailed in the latter part of June, when the plant closed down. About 7,500 men are now employed and new business is coming in at the rate of \$3,000,000 a month.

The Brooks plant of the American Locomotive Co. is about to resume part-time operation to fill an order for engines for the Mexican National railroads.

Norfolk Navy Yard on Half Time

Lack of funds has made it necessary that the Norfolk Navy Yard operate on half time, beginning Monday, July 11. Two thousand men were laid off for nine days, but the lay off may be made indefinite unless the deficit at the navy yard is made up within that period.

Rolling Mills Close; 750 Idle

Officials of the American Rolling Mills Co., Middletown, Ohio, announce that they have shut down their sheet band jobbing mill department due to the failure of the sheet and tin plate manufacturers and the Amalgamated Association of Iron, Steel and Tin Workers to agree at their wage conferences which have been in progress at Atlantic City and Columbus. Seven hundred and fifty men were thrown out of work.

Erie Shops Reopen, 3,000 Go Back

Erie R.R. shops in Buffalo and Hornell, which had been closed for several months, reopened Monday, July 11, on an order from the New York headquarters of the road. The Buffalo shops resumed with eight hundred men and the Hornell shops with one thousand. The road's shops at Meadville, Pa.; Galion, Cleveland and Kent, Ohio, also resumed the same day, about 1,200 men being affected.

Lancaster Cotton Mills Running

The Lancaster Cotton Mills, Lancaster, S. C., which closed several weeks ago, resumed work Monday, July 11, according to John Dean, organizer of the United Textile Workers of America. Mr. Dean said that a committee representing the employees of the mills had come to him with a proposition from the mill officials, which he advised them to accept. The mill officials announced a few days ago that they would start operation as soon as a sufficient number of operatives applied for work on the basis of working conditions, wages, etc., existing at the time of the shutdown.

Rocky Mountain Mine Chiefs Temper Their Technical Sessions with Gayety

By F. W. WHITESIDE*
Denver, Col.

MONDAY evening, June 27, twenty-four members of the Rocky Mountain Coal Mining Institute from Colorado and New Mexico left Denver on the Union Pacific R.R. for Rock Springs, Wyo., arriving there Tuesday morning, June 28. The party was met by the local committee and the Rock Springs members and were conveyed in automobiles to the central power plant of the Union Pacific Coal Co. and to various coal mines in the district. During the noon hour a delightful luncheon was served to the entire party at the Reliance Mine of the Union Pacific Coal Co. In the evening the members and friends of the institute visited Rock Springs' leading movie house, after which the evening was brought to a delightful conclusion with a dance at the Masonic Temple. At 12:35 a.m. the party, augmented by the Wyoming members, were en route for Salt Lake City, arriving there at 8:25 a.m., Wednesday, June 29.

The first order of business was the registration of members from 10 to 11:45 a.m., at convention headquarters in the Hotel Utah. At noon, the convention, now numbering eighty-five members, attended the Latter Day Saints' Tabernacle, in Temple Square, and listened to a recital upon the famous organ.

At 2 p.m. the first session was called to order in the banquet room of the Hotel Utah. As the summer meeting is devoted entirely to the presentation of papers and the visiting of various plants and points of interest, very little in the way of regular business was transacted. At this session J. D. Forrester, chief engineer of the United States Fuel Co., presented his paper, "A Few of the Adverse Conditions Encountered in Mining Coal in the Utah Fields"; following this paper A. C. Watts, chief engineer, and William Littlejohn, general superintendent of the Utah Fuel Co., delivered interesting talks upon the reopening of the Sunnyside Mine after the recent disastrous fire which necessitated sealing it.

At 5:45 p.m. the party adjourned to Saltair for a swim in the lake and for dinner, which was served in the Ship Café at 7:30 p.m. After dinner the party danced until 11:30 p.m.

Thursday morning, June 30, the meeting was called to order in the supper room of the Hotel Utah, at which meeting papers were read by D. C. McKeenhan, chief engineer of the Union Pacific Coal Co., of Rock Springs, subject: "Growth of the Electric-Power System of the Union Pacific Coal Co."; by Benedict Shubert of the Lindrooth-Shubert Co. of Denver, subject: "Screening and Preparing Coal at the Tipple," and by E. R. Gibson of Salt Lake City, subject: "Coal-Mine Accounting."

The meeting adjourned at noon and again reconvened at 1:30 p.m., at which session the various papers read at this meeting were discussed; proposals for membership balloted upon and various other matters of business transacted. At 3 p.m. the meeting adjourned to the baseball grounds on South Main Street, where Salt Lake City went down to defeat at the hands of the Sacramento team of Sacramento, Cal. At 7 p.m. the members and their ladies sat down to a banquet in the banquet hall of the Utah Hotel, where the remainder of the evening was spent in feasting and dancing. This concluded the thirteenth semi-annual meeting.

Operators Will Contest Anthracite Tax

AN AMICABLE suit—a bill in equity—probably will be filed in the Dauphin County Court of Pennsylvania soon to test the constitutionality of the Pennsylvania tax on the anthracite output, effective the first of this month but not collectible before Jan. 1 of next year. This decision was reached at Harrisburg, July 12, at a conference of representatives of the anthracite producers with Attorney-General George E. Alter, and prompt action will be taken so

*Secretary, Rocky Mountain Coal Mining Institute and chief engineer, Victor-American Fuel Co.

that the case can be carried on appeal to the State Supreme Court in time for a decision prior to the first of next year. Those attending the conference were W. S. Jenny, general counsel for the Glen Alden Coal Co.; R. H. Harris, Scranton; H. F. Drinker, Jr., Philadelphia; John T. Brady, Harrisburg, and David Reese, Harrisburg.

Attorney-General Alter said that the details of the suit have not been worked out. "We discussed practicable methods of promptly testing the validity of the anthracite tax," he said, "and are hopeful of finding a plan by which a final decree can be obtained before Jan. 1."

Bidders on Coal for Long Island Hospital Quote Prices Below Company Schedule

BIDS submitted by many coal men on July 8 for furnishing 18,000 gross tons of rice coal to the State Hospital at Kings Park, Long Island, showed most proposals to be below the company schedule of \$2.50 per ton f.o.b. mine. Ten bids were submitted, the tonnage being divided into two separate lots—7,000 tons to be delivered between July 15 and Sept. 1, and the balance, 11,000 tons, to be delivered up to June 30 of next year. The bidders and prices follow:

	7,000 Tons	11,000 Tons
Coney Island Coal Co.	\$2.60	\$2.65
Weston Dodson & Co.	2.45	
Tuttle-Burger Coal Co.	2.45	2.45
Whiteley & Foedisch	1.99	2.34
Phoenix Coal Co.	2.11	2.34
Valley Camp Coal Co.	2.44	2.44
Pattison & Bowns, Inc.	1.97	2.47
C. D. Norton & Co.	2.08	2.30
Whitney & Kemmerer	1.80	2.45
John W. Peale	1.69	2.16

Two bids were received for the entire 18,000 tons. They were: Whiteley & Foedisch, \$2.20, and John W. Peale, \$1.97.

Ellery B. Gordon Appointed President of Mid-State Coal Co., a New Corporation

ELLERY B. GORDON, having presented his resignation as secretary-manager of the National Retail Coal Merchants' Association at a meeting of the Executive Committee of the organization held in New York, June 10, will take up his new duties as president of the Mid-State Coal Co. Aug. 1. The latter is a new corporation organized to operate on a holding of bituminous coal lands in Jefferson County, Pennsylvania. The office of the corporation is in the Witherspoon Building, Philadelphia. Mr. Gordon held the office of secretary-manager of the retailers' association for two and a half years.

Production of Coal in Ohio, 1919 and 1920*

County	(In Net Tons)	1919	1920
Athens		5,181,643	6,872,646
Belmont		9,999,648	10,953,668
Carroll		361,823	388,513
Columbiana		650,971	957,811
Coshocton		274,998	458,841
Gallia		12,514	22,207
Guernsey		3,342,915	3,760,463
Harrison		1,452,061	1,917,607
Hocking		1,162,366	1,855,499
Holmes		11,512	9,645
Jackson		478,474	841,314
Jefferson		4,964,610	6,713,531
Lawrence		140,433	286,399
Mahoning		40,160	55,985
Medina		5,249	6,652
Meigs		877,516	1,339,162
Monroe		312	516
Morgan		208,671	276,852
Muskingum		399,364	669,961
Noble		809,317	638,237
Perry		2,580,890	3,700,511
Pike			15
Portage		75,310	121,943
Scioto		860	889
Stark		325,923	498,118
Summit		37,397	17,744
Trumbull		1,347	2,614
Tuscarawas		1,595,620	2,231,345
Vinton		166,881	340,866
Washington		4,543	16,687
Wayne		62,580	7,837
Totals		35,225,908	45,277,077

* From reports of the Ohio Industrial Commission.

T. H. Watkins Says Mine Workers' Pamphlet Is Notable for Misstatements and Omissions

IN the course of an address on "The Coal Situation in Central Pennsylvania," delivered before the Rotary Club of Clearfield on Thursday, July 15, T. H. Watkins, president of the Pennsylvania Coal & Coke Corporation, replied to certain press statements issued by the officers of district No. 2, United Mine Workers of America, and circulated in pamphlet form throughout the region.

Mr. Watkins' comments on the pamphlet were in part as follows:

"The officers of district No. 2 convey the impression that the Central Coal Association asks the union to break the contract now running. We asked for a conference to consider its modification, not its abrogation. Business men frequently meet changed conditions through modifying contracts by mutual agreement, when it is to their mutual advantage to do so; the miners' unions are the parties that break running contracts when conditions favor such action.

"The miners' pamphlet states: The facts are these: The mine workers are working under a scale of wages fixed by the U. S. Bituminous Coal Commission. These schedules were written into an agreement between miners and operators which will not terminate until March 31, 1922. This is a contract and will not be broken by the mine workers.

"The foregoing statement is far from the truth," said Mr. Watkins emphatically. "The real facts are that the United Mine Workers of America threw the commission's award into the scrap heap, along with former wage agreements, less than four months after it had been accepted by them as the basis of a new wage scale. On Aug. 15, 1920, as a result of illegal strikes and other unscrupulous methods, they forced an advance of \$1.50 per day to day and monthly men over and above the scale of wages fixed by the commission.

"We are, therefore, not working under the scale of wages fixed by the U. S. Coal Commission. It appears to me that the officers of district No. 2 have made and broken so many contracts in the last five years that their memories have grown hazy as to which scale they now want to pretend is valid. If we are working under the wage scale fixed by the commission, then the operators are violating it by paying \$1.50 a day too much, and this should immediately come off.

"The pamphlet is conspicuous for two reasons," continued Mr. Watkins; "first, its misstatements; second, its omissions. For instance, they forgot to mention the iniquitous and damnable check-off system. Of all American business men, the coal operator is the only one to tolerate such nonsense.

TONNAGE FIGURES IGNORE WAGE READJUSTMENT

"The tonnage figures of this district are correct," Mr. Watkins admitted, "but ignore the fact that most of the tonnage is from mines working on a readjusted wage basis. Many union mines are not working at all; others about 20 per cent.

"The miners' pamphlet quoted some figures purporting to be the earnings of the Pennsylvania Coal & Coke Corporation. I wish the figures were correct, but instead of being 'net' earnings, or 'profits,' as the pamphlet says, they are in gross, from which a large proportion was paid in Federal taxes. Cost of replacements is not deducted. The net results of my company's operations show an average profit from Jan. 1, 1916, to June 1, 1921, of 27½c. per ton, or 8½ per cent on actual capital invested. We are now operating at an actual loss."

Referring to the headquarters of the United Mine Workers at Indianapolis, Mr. Watkins stated that the miners, operators and merchants of the central Pennsylvania district are left subject to "the judgment of a far-away autocratic power, not acquainted or much concerned with local conditions. The consequence is that this district always suffers to benefit some other section of the

country, local labor leaders not being courageous or able enough to act independently in this district's interest."

Mr. Watkins also scored the professional labor leaders of district No. 2 for their intimate association with socialists of the Foster, Fitzpatrick and Maurer type, and for the adoption of the miners' program of industrial revolution.

He asserted that the miners' leaders of the central Pennsylvania district, by abandoning the old system of collective bargaining in favor of a bolshevist social program, had brought the operators and the union organization to the parting of the ways.

Brophy Replies to Watkins' Address

REPLYING to Thomas H. Watkins' address before the Patton Chamber of Commerce, June 23, John Brophy, president of District No. 2; James Mark, vice-president; Richard Gilbert, secretary-treasurer, and John Ghizzoni, international board member, all of the United Mine Workers of America, have published a statement to the effect that the operators of central Pennsylvania have refused to say what they want. If, however, they seek a wage reduction the mine workers' leaders say: "Our answer is this—there will be no reduction during the life of the contract."

The statement of the mine workers' leaders says: "Mr. Watkins gives slack work and competition as reasons why the district should break the wage contract. But slack work is not a local condition. It is nation-wide. When district No. 2 is producing 40.1 per cent, Illinois is producing 37 per cent. When our district is producing 37.3 per cent, Indiana is producing 32.9 per cent of full-time output. Mr. Watkins claims that the competition of non-union fields working on lower wages is taking away business. But slack work affects Somerset County, which shows 41.4 and 45.2 per cent of production."

Mr. Brophy is quoting the U. S. Geological Report of the weeks ended June 4 and June 11, but in doing so he says nothing about Westmoreland County's production of 71.8 per cent in the week ended June 4. That week Winding Gulf showed 68.9 per cent; New River, 53.6; Pocahontas, 52.9; Tug River, 74.2; and Logan, 55.6.

As a final shot the mine workers' leaders say: "Light will be thrown on Mr. Watkins' reaction by examining the figures of his Pennsylvania Coal & Coke Corporation. His company reports net earnings, which means profit, in 1916 of \$181,675; in 1917 of \$2,589,614; in 1918 of \$2,232,371 and in 1919 of \$800,158.

Despite Tumult Francisco Mine in Indiana Again Ventures to Operate

FROM June 10 until July 14 work was discontinued in the Francisco mine, near Princeton, Ind., from which 150 foreigners were driven out by a vigilante body alleged to be composed of miners. The superintendent, Edward Cox, also was driven out, but has returned. Work recommenced July 14. A special Grand Jury was impaneled by the Gibson County Court. It made 119 indictments for offenses in connection with the vigilante outbreak, 106 being for rioting, 11 for riotous conspiracy and 2 for perjury.

Among the indicted are Frank Bolin, president of the Princeton (Ind.) local of the United Mine Workers of America. One man, Ancil Drew, tried to run when arrested by the sheriff and received a shot in the left hand, the wound being but slight.

Must Pay as Tax More Than Coal Brings

OWNERS of the Woodward-Williamson coal tract in Edwardsville Borough and School District are endeavoring to have the valuation reduced from \$1,000,000 to \$400,000. A decree was made by the court permitting the

borough to introduce testimony to prove that the coal was more valuable than the sum fixed, and Judge Woodward on the stand said that he would be more than glad to sell his interest at the sum fixed by the court.

R. V. Norris, who was formerly engaged by the Woodward-Williamson interests, made a report on the property and recommended that the owners of the coal tract sell it to the Delaware, Lackawanna and Western R.R., Coal Department, now the Glen Alden Coal Co., for \$675,000, but it is asserted that at that time he was seeking a good price for his clients.

Settlement Terms of British Coal Strike

ACCORDING to the report issued by the British Board of Trade, June 28, the terms of settlement of the coal dispute are as follows:

1. A national board shall be constituted forthwith, consisting of persons chosen by the Mining Association of Great Britain and by the Miners' Federation of Great Britain, equal members from each body sitting on the board. In each district, boards shall be established consisting of persons representing owners and workmen, each class being represented equally. The national and district boards shall draw up their own rules of procedure, which shall include a provision for the appointment of an independent chairman for each board.

2. The wages payable in each district shall be expressed in the form of a percentage upon the basis rates prevailing in the district, and shall be periodically adjusted in accordance with the proceeds of the industry as ascertained in such district.

ADJUSTMENT BY DISTRICTS AND NOT NATIONALLY

3. The amount of the percentage to be paid in each district during any period shall be determined by the proceeds of the industry in that district during a previous period, as ascertained by returns to be made by the owners, checked by a joint test audit of the owners' books carried out by independent accountants appointed by each side.

4. The sum to be applied in each district to the payment of wages additional to the standard wages, as hereinafter defined, shall be a sum equal to 83 per cent of the surplus of such proceeds remaining after deduction therefrom of the amounts of the following items during the period of ascertainment: (a) The cost of the standard wages; (b) the costs of production other than wages; (c) standard profits equivalent to 17 per cent of the cost of the standard wages. The share of the surplus applicable to wages shall be expressed as a percentage upon the basis rates prevailing in the district.

If in any period the ascertained proceeds, after deduction of costs other than wages and the cost of the standard wages, prove to have been insufficient to meet the standard profits, the deficiency shall be carried forward as a first charge, to be met out of any surplus in subsequent periods, the surplus being ascertained as above.

LIVING WAGE TO BE DETERMINED AND PROVIDED

5. If the rates of wages thus determined in any district do not provide a subsistence wage to low-paid day-wage workers, such additions in the form of allowance per shift worked shall be made for that period to the daily wages of these workers as, in the opinion of the district board, or in the event of failure to agree by the parties, in the opinion of the independent chairman, may be necessary for the purpose. Such allowances shall be treated as items of cost in the district ascertainment.

6. For the purpose of these periodical adjustments the units shall be the districts set out in the schedule hereto, and shall only be varied by the decision of the district board or boards concerned, provided that no variation shall take place prior to Feb. 1, 1922, in the grouping of any district unless it is mutually agreed by the representatives of both sides in the district or districts concerned.

7. The standard wages shall be the district basis rates existing on March 31, 1921, plus the district percentages

A lease at a low royalty was made on the property, and the agreement required that the owners pay the taxes. Edwardsville is now practically a suburb of Scranton, and the taxes, in consequence, are so high that they exceed the royalties, making the property a debit and not an asset.

The Borough of Edwardsville wants the money and declares that it cannot be made to suffer by the terms of an improvident lease, that the coal is worth more than the valuation set on it and that by some method the lessees should be compelled to pay an adequate return on the true valuation.

payable in July, 1914, for the equivalents in any district in which there has been a subsequent merging into new standards; plus, in the case of piece workers, the percentage additions which were made consequent upon the reduction of hours from eight to seven.

8. In no district shall wages be paid at lower rates than standard wages plus 20 per cent thereof.

9. The national board shall forthwith consider what items of costs are to be included for the purposes of paragraph 4 (b) above, and in the event of agreement not being arrived at by July 31, the matter shall be referred to the independent chairman for decision.

10. The wages payable by the owners up to Aug. 31 inclusive shall be based upon the ascertained results of the month of March, and the wages payable during September shall be based upon the ascertained results of the month of July. The periods of ascertainment thereafter shall be decided by the national board.

LOSE MONTH'S PROFIT WHEN WAGE IS REDUCED

11. During the "temporary period" as hereinafter defined the following special arrangements shall apply in modification of the general scheme set out above:

(a) In calculating the proceeds for March the deduction to be made for costs other than wages shall be the average of such costs during January, February and March.

(b) In any district in which reductions in wages continue to be made after the first ascertainment, no part of the surplus proceeds shall be assigned to profits if and in so far as this would have the effect of reducing the wages below the level in the preceding month.

When in any district there is a break in the continuity of reductions in wages upon the periodical ascertainment at that point and thereafter the general scheme shall apply fully in regard to owners' surplus profits.

(c) The proviso to paragraph 4 regarding the carrying forward of deficiencies in standard profits shall not apply, but any net losses shall be so carried forward.

(d) The government will give a grant not exceeding £10,000,000 in subvention of wages.

(e) This subvention shall be available for making such increases to the wages otherwise payable in any district as may be necessary to prevent the reductions below the March rates of wages being greater than the following amounts: During July, 2s. a shift for persons of 16 years of age and upward, and 1s. a shift for persons under 16. During August, 2s. 6d. and 1s. 3d. respectively. During September, 3s. and 1s. 6d. respectively, provided that the balance of the subvention is sufficient for this purpose.

FURTHER PLEDGE FOR SEPTEMBER AND OCTOBER

(f) If any district in which in any month the proceeds available for wages calculated in accordance with the terms of this settlement are sufficient to admit of a rate of wages equal to or higher than the rate payable under the maximum reduction for that month, the wages payable by the owners shall be calculated not in terms of basis plus percentage but on the same basis as during March, less flat-rate reductions uniform throughout the district for persons of 16 years of age and upward and persons under 16 years of age respectively.

(g) In any district in which the wages calculated in accordance with the terms of this settlement are less than

the wages payable under the maximum reductions aforesaid, the difference shall be met by the owners in that district during September to the extent of the aggregate net profits realized by them on the district ascertainment for July, and during October to the extent of the aggregate net profits realized by them on the district ascertainties for July and August.

(h) The expression "temporary period" means the period from the date of the resumption of work Sept. 30, 1921.

12. The period of duration of this agreement shall be from the date of the resumption of work until September 30, 1922, and thereafter until terminated by three months' notice on either side.

13. It is agreed as a principle that every man shall be entitled to return to his place when that place is available for him, and that men temporarily occupying places during

the stoppage shall give way to men working in those places before the stoppage.

It is agreed, on the other hand, that there shall be no victimization of men who have been keeping the collieries open, not, however, in the sense that they are to remain at the jobs they filled during the stoppage of work, but in that they shall not be prevented from going back to their own jobs or from working subsequently at the colliery at which they formerly worked.

The schedule of districts to which reference has been made contains the following areas: Scotland, Northumberland, Durham, South Wales and Monmouth, Yorkshire, Nottinghamshire, Derbyshire, Leicestershire, Cannock Chase and Warwickshire, Lancashire, North Staffordshire and Cheshire, North Wales, South Staffordshire and Salop, Cumberland, Bristol, Forest of Dean, Somerset, Kent.

April-June Anthracite Shipments Show That Domestic Consumers Are Spreading Traffic Over Entire Year

SHIPMENTS of anthracite for June as reported to the Anthracite Bureau of Information at Philadelphia amounted to 6,031,937 gross tons, as compared with 5,793,895 tons in May, an increase of 238,042 tons. Cumulative shipments for the first three months of the present coal year, beginning April 1, have amounted to 17,793,297 gross tons, as compared with 17,290,046 tons for the corresponding period in 1920, an increase of a little more than 500,000 tons.

Production figures indicate that the anthracite industry and the anthracite consuming public are doing their part to spread traffic over the entire year and to prevent any undue stress upon mines and railroads when cold weather comes.

The single item of increase, 500,000 tons, does not cover the situation fully, for while total shipments this year exceed total shipments last year by that figure, shipments of steam sizes for the first quarter of the current coal year have declined a little more than 750,000 tons. In other words, the shipments of domestic sizes for the first quarter of this coal year have exceeded shipments of domestic sizes for the first quarter of the coal year which began April 1, 1920, by a little more than 1,255,000 tons.

CONSUMERS' STOCKS GREATER THAN A YEAR AGO

Thus domestic consumers of anthracite have in their cellars today one and a quarter millions tons more fuel than they had one year ago, and are in a correspondingly better position so far as next winter is concerned. This is an important fact from a market and distribution standpoint. Every additional ton of anthracite put in early is more than an insurance for the purchaser; it is a direct assistance to those purchasers who for one reason or another are not in a position to stock up in advance, and it is an assistance to miners and railroads if it becomes necessary later, through stress of weather, to concentrate supplies at points needing immediate help.

While shipment figures for steam sizes of anthracite show a decline of more than three-quarters of a million tons for the first three months of this coal year, compared with last year, this coal has been produced. It is a byproduct which the anthracite mines cannot help making, but with the present industrial conditions the market is limited and much of this fuel is being dumped on stockpiles at the mines. These steam sizes, which compete with bituminous as industrial fuel, are always sold below the cost of production, but there is very light demand just now for industrial fuel of any sort.

The average monthly shipments for the present coal year have been 5,931,000 tons, against 5,780,560 tons for the coal year 1920-21 and 5,923,557 tons in the coal year 1919-20, and have exceeded the averages for any preceding years with the exception of the two war years 1917 and 1918, when washery coal recovered from the culm banks furnished a temporary excess supply.

Shipments by originating carriers were as follows, in gross tons:

	June, 1921	May, 1921
Philadelphia & Reading.....	1,157,738	1,108,476
Lehigh Valley.....	1,069,521	1,027,688
Jersey Central.....	571,213	544,716
Lackawanna.....	1,009,119	915,191
Delaware & Hudson.....	763,893	753,039
Pennsylvania.....	441,693	409,027
Erie.....	555,882	630,574
New York, Ontario & Western.....	163,742	153,809
Lehigh & New England.....	299,136	251,375
Totals.....	6,031,937	5,793,895

Efficiency Bureau Praises Operation and Accounting of Government Fuel Yard

THE Bureau of Efficiency, at the request of the Director of the Bureau of Mines, after the passage of resolutions by the National Retail Coal Merchants' Association criticising the cost accounting system of the Government Fuel Yard, has prepared a report on the methods of operation and cost accounting employed by the Government Fuel Yard at Washington, D. C.

"In our opinion," says the report, "the accounts of the Government Fuel Yard are complete and comprehensive, reflecting the investment in fixed and working capital and the results of operation, including the cost of each department. . . . The criticism which has been made from time to time of the Government Fuel Yard to the effect that its costs are not complete and that, in competition with commercial yards on a commercial basis, its operation would result in a loss, is not justified in our opinion, for none of the published cost statements of commercial yards that have come to our attention set forth handling costs per ton that compare favorably with the costs estimated above for the Government Fuel Yard, operating as a commercial yard."

Miners Want Consolidation Coal Co. to Pay Them Three-Quarters of a Million

CHARGING that the Consolidation Coal Co. by improper mine weights has deprived them of approximately three-quarters of a million dollars, Roy Anderson and 110 other miners have entered suit against that company to recover. Argument of the demurrer was heard before Judge Robert R. Henderson in the Circuit Court. The company contended that grounds for equity were not shown and that if the allegations of the plaintiff could be proved an adequate remedy existed at law. Judge Henderson, declaring that the importance and the intricacy of the questions at issue demanded most careful inquiry, said he would not render a decision until Aug. 1 and instructed counsel to file briefs with him before that date. The time during which the defendants are alleged to have made the alleged false weighings was October, 1902, and Oct. 7, 1917.

National Coal Association Would Co-operate with Hoover; Department Wants Data from Geological Survey

BY PAUL WOOTON
Washington Correspondent

THE National Coal Association has given its president, J. G. Bradley, full authority to use his own judgment in negotiating with the Secretary of Commerce as to what statistics the association will furnish voluntarily in the matter of production, distribution and average sales realizations. The only limitation placed on Mr. Bradley by the Board of Directors was that he obtain assurance from the government that these voluntary reports will not be considered as violating the Sherman Law. Acting under the authority reposed in him, Mr. Bradley and J. D. A. Morrow, the vice-president of the association, plan to discuss the matter with Secretary Hoover in the near future.

Secretary Hoover stated on July 18 that he contemplates making no request of the operators to furnish voluntary statistics. He said that the new coal commodity division would get its figures as to production from the U. S. Geological Survey. As to price information, he stated that he preferred obtaining it from sources other than the operators, as it would be regarded by the public as more authentic when obtained from sources other than those who produce the coal. Mr. Hoover made it clear that this was no reflection on the operators, as it is natural that prices emanating from them would not be given the same weight as would those that could be collected otherwise.

In addition, Secretary Hoover expects to collect data as to stocks, in which the operators could not be of assistance.

BRADLEY AND MORROW TO FOLLOW LEGAL GUIDANCE

In their negotiations with Secretary Hoover, Messrs. Bradley and Morrow will be guided by a detailed opinion on the subject which was submitted to the Board of Directors by the law firm of Butler, Lamb, Foster and Pope. Extracts from that opinion are as follows:

"We understand that the method of carrying on this work was as follows: The National Coal Association collected from local producers' associations and trade bureaus statistical reports concerning closed transactions of bituminous coal operators and members of said bureaus, showing the aggregate number of cars sold for shipment into different consuming territories, the kinds of coal sold, the prices per ton and the class of customers to whom sold, and from the information so assembled the National Coal Association prepared and distributed to those local associations, bureaus and operators consolidated statistical reports showing the number of cars of coal sold for shipment from the several producing districts into the several consuming territories and the prices at which such coal had been sold. The information so assembled and distributed had to do exclusively with closed transactions which had been consummated by the making of contracts, and none of the information had to do with prices bid or offered or with future or prospective transactions or future trade or market conditions, and none of said information had to do with shipments made on such sales, the amount of coal produced by the different mines, or the name of the seller or of the customer or consignee of such coal.

"The dissemination of such information among the local associations, bureaus and individual operators simply advised those operators of market conditions such as are readily available to those engaged in many other lines of business; for example, those dealing in the stock, grain or other exchanges of the country. This information was currently published in trade journals and was available to the public press and to all consumers who cared to ask for it. It is perhaps superfluous to add that there was nothing whatever in the nature of an agreement to fix or enhance prices or restrain production through such reporting system or otherwise.

"Instead of resulting in any fixing or enhancing of prices,

the information so collected and distributed by the National Coal Association showed that there was great diversity of prices prevailing at the time when such reports were made, and that different carloads of coal moving on the same day from the same producing district into the same consuming territory were sold at various and substantially different prices, and that there was nothing approaching uniformity of prices realized for coal of the same quality sold in the same places and at the same time.

"In discussing the question as to whether this practice should be resumed at the present time your Board, as we understand it, desires to be advised so far as possible as to whether the practice as above outlined was legal."

After a comprehensive review of the legal aspects of the case, in which many opinions and decisions on like matters are cited, including a discussion of the hardwood case, the brief continues:

LIKENS SCHEME TO AGRICULTURE REPORTS

"It is difficult to see how the government could well claim that the interchange of such information is, in and of itself, illegal, in view of the fact that the Department of Agriculture for years past has been collecting and publishing weekly in its Market Reporter information concerning the supply and demand of agricultural products and all pertinent trade information for the use of both producers and consumers. It is apparently recognized by the government that it is legitimate and desirable that information concerning market conditions should be given wide publicity and it would certainly never be suggested that those producers who took advantage of the information thus furnished by the government and asked for their products the highest prices which the market conditions would justify were in any way guilty of illegal or improper practice, unless it could be shown that they entered into some conspiracy or agreement artificially to enhance prices or restrict production. In the same way, as it seems to us, the producers of coal are entitled to receive and to take advantage of information concerning market conditions in their industry.

"In closing we would state our opinion that a fortunate outcome of the present situation with regard to the system of statistical reporting would be to work out in co-operation with the Secretary of Commerce some method of collecting and disseminating reports which would be satisfactory to him and not in any way objectionable to the Department of Justice. Whether the Secretary of Commerce would at this time be prepared to entertain a proposition of this character and to countenance and encourage the collection of such statistics, we are not advised.

"It would from your point of view certainly be most desirable that you should secure if possible such official recognition of the legality and desirability of such statistical reporting system before the same is renewed. If such official recognition cannot at this time be secured, it would, in our opinion, be wise policy for your board to postpone the resumption of your statistical reporting system until the fall, when a decision from the Supreme Court in the American Hardwood Lumber Co. case can be confidently expected. And in the meantime some more authoritative declaration may be forthcoming from the Department of Justice concerning its attitude toward such interchange of trade information."

THE SUNNYSIDE COAL MINING CO. and the Spring Canyon Coal Co., both of Colorado, have been admitted to membership in the National Coal Association.

Hoover Advises Utilities to Buy Coal Now; Priority Not Likely to Be Granted

HERBERT HOOVER, Secretary of Commerce, made public on July 18 the text of a letter which he has addressed to all the public utility companies. The letter reads:

"I would like to call the attention of your association to the bituminous coal outlook. There is every indication that there has been an undue slackness in the purchase of coal which may accumulate to large demands in the autumn. I am convinced that, due to the general depression, the prices of bituminous coal at the mines is not too high at the present time. This is, I think, proved by the fact that numbers of operating coal companies are making no profit whatever. If there should be a recovery of business activities in the autumn, taken in conjunction with the large increase in percentage of disabled cars (from 5 per cent to 16 per cent during the past six months) and the inability of the railways to finance their maintenance, there are possibilities of development of a most serious situation as regards coal movement.

"I cannot but feel that the Interstate Commerce Commission, in the face of warnings they have sent out in this connection, would not be disposed to give any priority in such an event. It seems to me, therefore, to be obvious that the public utilities companies, both in their own interests and the protection of the public should make early provision for stocks of coal sufficient to carry them over a critical period."

N. Y. School Board Awards Coal Contracts; \$300,000 Less Than Last Year

THROUGH acceptance of bids received on June 27 (*Coal Age*, July 14, page 70) the Board of Education of New York City has saved \$300,000 as compared with the coal bill for last year, the average saving per ton amounting to \$2.55, according to Arthur S. Somers, chairman of the Supplies Committee. The awards were made by the Board of Education at its meeting on July 13.

William Farrell & Son obtained the contract for Manhattan Borough at a cost of \$418,807.50 and the Borough of the Bronx at a cost of \$158,782. The Wyoming Valley Coal Co. obtained the contracts for Brooklyn at \$439,530; Queens at \$133,121 and Richmond at \$42,553.75. For delivering alongside 3,500 tons of semi-bituminous coal for the Parental School the contract was awarded to George D. Harris & Co. for \$24,500. The bids for furnishing 700 tons of broken coal for the Rockaway schools were rejected and ordered re-advertised.

Mingo Mine Workers Write Their Demands

FRANK KEENEY, president of district No. 17, C. United Mine Workers of America, has addressed a letter to Governor E. F. Morgan, of West Virginia, giving the demands of his organization. They are:

"That the Williamson Coal Operators' Association shall agree—(1) that all employees may return to work and that there shall be no discrimination against any employee belonging to a labor union; (2) that the eight-hour day be established and made applicable to all classes around the mines; (3) that wages shall be paid semi-monthly; (4) that the employees shall be allowed to trade where they please; (5) that employees shall have the right to select checkweighmen, as provided by law, and that 2,000 lb. shall constitute a ton; (6) that there shall be a joint commission, consisting of five representatives from each side (each side to choose its own representatives), for the purpose of adjusting wages of all men working in and around the mines, of determining equitable mining prices and yardage and of providing rules and methods for adjusting disputes between employers and employees.

"In order to avoid any failure to agree, a board of arbitration consisting of three members shall be created, one to be chosen by the operators and one by the employees,

and these two to select the third member, who shall be a non-resident of this state. The board of arbitrators shall meet with the commission, and any question that the commission is unable to settle shall be submitted to and decided by the said board, which decision shall be final. The findings of the commission shall date from the time work is resumed, and shall continue until April 1, 1922."

Wage Cut Advocated in State of Washington

A REPORT submitted by the State Coal Commission to the Director of Labor and Industry in the State of Washington gives facts concerning the coal trade and advocates the lowering of retail prices on coal produced in the state to meet the competition from outside fields. The reduction should be from 50c. to \$1 a ton on the steam grades and from \$1 to \$2.50 on domestic Western-State grades.

The commission also suggests a wage cut. The present scale of miners is \$8.25 a day and the scale suggested is \$6, that in 1919 being \$5.89. As \$8.25 per day was the highest scale paid before the strike and the lowest is \$4.82, a return to a scale but slightly above that paid in 1919, which ranged from \$5.89 to \$3.20, is recommended.

Says Proposed Duty on Fuel Oil Would Equal Tax on Coal of \$1.50 Per Ton

AS AN INCIDENT to the discussion of the proposed tariff on fuel oil, the Governor of Massachusetts at the expressed request of those opposing a duty on oil, telegraphed that this year there will be 500,000,000 gallons of Mexican crude oil brought into Massachusetts. Ninety per cent of that amount is fuel oil, which Governor Cox declares to be equivalent to 2,750,000 net tons of bituminous coal. The Massachusetts Chamber of Commerce also is urging the retention of oil on the free list. The proposed duties of 35c. per barrel on crude petroleum and 25c. per barrel on fuel oil will put an additional burden upon the industries of Massachusetts, the State Chamber of Commerce declares, which would be equivalent in coal to a tax of \$1.50 a ton. This would amount to "millions of dollars," says the Chamber, which "necessarily would be passed on to the consumer."

By a vote of 196 to 86 the House of Representatives on July 18 rejected the proposal of its Ways and Means Committee to place an import duty on crude oil and fuel oil, and adopted a motion of Representative Treadway, of Massachusetts, to place oils on the free list.

Pratt Is New Editor of Coal Review

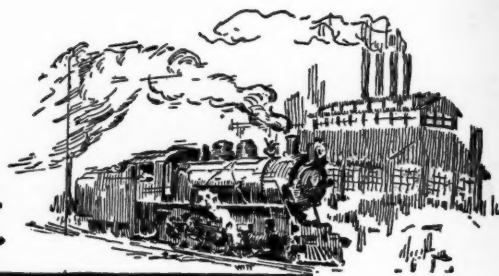
IN the interest of economy the Board of Directors of the National Coal Association has decided to combine the offices of the director of publicity of the National Coal Association and the editorship of the association organ, *Coal Review*, according to a report from the headquarters of the association. John Pratt, for more than a year director of publicity of the association, has been selected for the new position and will succeed William P. Helm, Jr., as editor of *Coal Review*.

National Coal Association Favors Repeal of Excess Profits Tax

THE Board of Directors of the National Coal Association has made clear its position on taxation. In acting on the referendum of the Chamber of Commerce of the United States, the board voted that individuals, corporations and partnerships should be taxed alike. The board voted in favor of the repeal of the excess profits tax and the substitution therefor of a 1 per cent commodity turnover tax and a corporation income tax of not to exceed 15 per cent.



Production and the Market



Weekly Review

PRODUCTION of bituminous coal continues on the down-grade. Output in the week of July 9, small because no mines worked on July 4, was 6,163,000 net tons, an average per working day of 1,233,000 tons, compared with 1,273,000 the previous week and 1,277,000 tons for the year to date. Indications are that output in the week of July 16 was smaller than for any full time week since early May. With loadings for the Lakes falling off and shipments to Atlantic Tidewater ports on the decline, the rate of production has slumped for several weeks. Now that domestic buying also has ceased in the Middle West and industries are not active, it appears that production is about down to bare necessities.

Promises of prompt action by large consumers of steam coal looking toward storage is contained in the responses from railroads and public utilities to the request of Chairman Clark of the Interstate Commerce Commission for early buying. Utility plants in New York City on June 20 had on hand 341,000 tons of bituminous steam coal, compared with 357,000 tons on May 2, and had 58,000 of anthracite steam sizes against 84,000 tons on May 2. In February these same plants had as high as 484,000 tons of bituminous steam coal and 131,000 tons of anthracite steam sizes on hand, so

it may be seen that there is room for a considerable gain in this one locality.

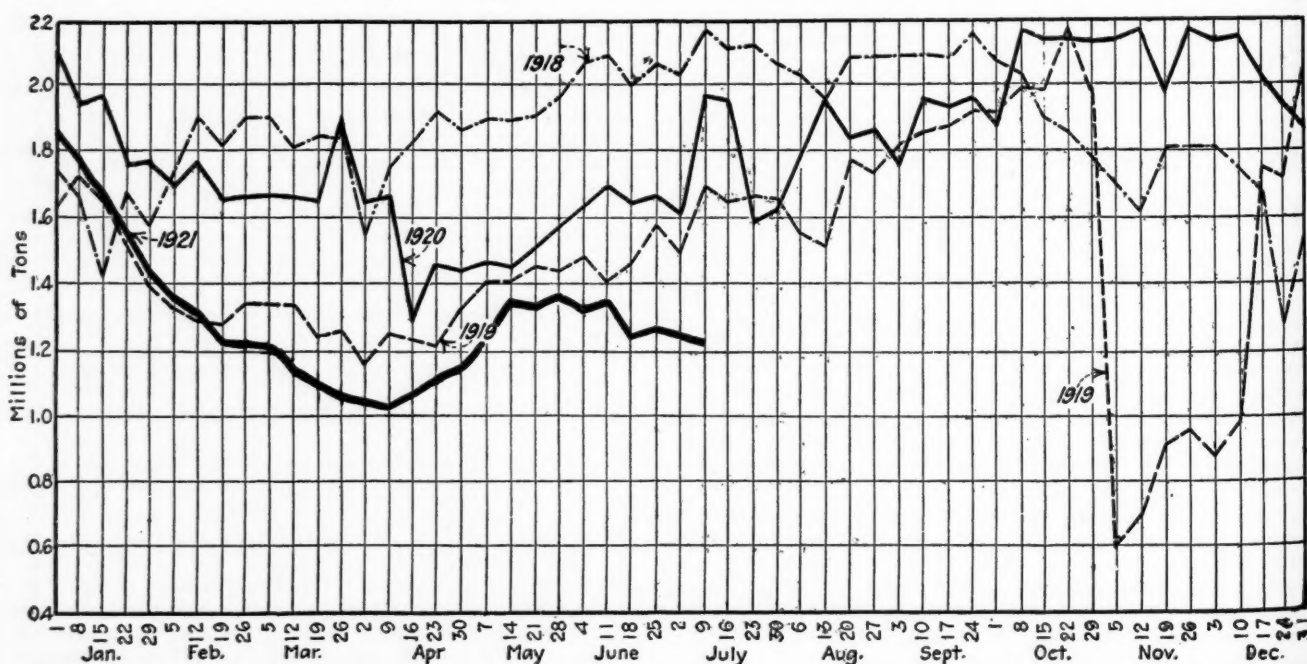
Prices are practically unchanged, *Coal Age* Index dropping one point to 89 on July 18, after having gone up to 90 on July 12 for one week. Prices continue to be largely nominal, with the volume of transactions in spot coal very low. In the Middle West there is a decided feeling that business is gaining strength and in the Rocky Mountain region the sentiment is strong that as soon as this year's crops begin to move the coal trade will pick up. In fact, the far West is the most hopeful of all and the far East the most pessimistic.

Anthracite is holding up in remarkable style. Production this year is 1,500,000 net tons ahead of last year and for the first six months was 45,500,000 net tons, a figure exceeded in the last eight years only by 1913 and the war years, 1917-1918.

LARGE PROPORTION OF SHIPMENTS FOR DOMESTIC USE

It is further pointed out that shipments from the mines of domestic sizes are really much greater than is indicated by these figures, for household coal has been a much larger portion of the total this year than in any recent year, because of the small demand for steam

Daily Average Production of Bituminous Coal*



*From weekly report of Geological Survey.

sizes. It does not appear that there can possibly be difficulty this year in the domestic supply of hard coal, providing there is no labor trouble, as in August, 1920.

BITUMINOUS

Bituminous coal production in the week of July 9 is reported by the Geological Survey as 6,163,000 net tons, a decrease from 7,640,000 tons the preceding week, largely due to the celebration of July 4, when no coal was loaded at the mines. Later information indicates that last week, although containing no holiday, will show a decrease in output below recent full-time weeks.

Cumulative production through the first 161 working days of 1921 was 204,527,000 tons compared with 225,132,000 tons in 1919 and 267,841,000 tons in 1920. Compared with the average of 1917-1920, output to date in 1921 is 65,000,000 tons behind. The Geological Survey reports that little change in the general situation was indicated by the mine reports for the week ended July 2. Decreases occurred chiefly in the low-volatile fields shipping to tide. Lessened activity was reported from the Somerset-Cumberland-Piedmont region, and the New River and Pocahontas fields; also in the Kanawha, Harlan and southwestern Virginia districts. The change, however, was largely offset by an improvement in Ohio and western Pennsylvania. Illinois, western Kentucky and Alabama also reported improvement.

Competition of lower-cost coal from non-union fields, where satisfactory wage reductions have been accomplished, is exerting heavy pressure on the union fields under contract with the men to maintain until April 1, 1922, the highest rates of pay in the history of coal mining. Central Pennsylvania, a union field, is sore pressed by non-union coal from Somerset, Westmoreland and Connellsville.

Eastern Kentucky, operating non-union mines, is working from 52 to 60 per cent of full time and western Kentucky 33 per cent.

Lake dumpings have continued to drop, the total for the week ended July 18 being 787,780 net tons, compared with 835,616 tons the week ended July 10. In these two weeks only have dumpings at Lake Erie ports this year been less than the corresponding weeks of 1919.

The all-rail movement of coal to New England slowed down during the first week of July. Reports show that 3,288 cars of anthracite and 2,647 cars of soft coal were forwarded over the Hudson, against 3,846 and 3,057 cars, respectively, in the preceding week, and compared with 1,169 of anthracite and 3,904 cars of bituminous coal the corresponding week a year ago.

Last week was a very dull week at Hampton Roads. Vessel tonnage awaiting cargo was negligible with little change in the accumulations of cars on hand. Exports from Hampton Roads declined sharply during the week ended July 9, when 302,000 net tons were dumped for foreign cargo and 72,000 tons for foreign bunker. The total—374,—

Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F. O. B. Mines

Low-Volatile, Eastern					Market Quoted					June 14, July 5, July 12, July 19,†				
Pocahontas lump.....	Columbus.....	\$5.75	\$5.75	\$5.75	\$5.50@	\$5.75								
Pocahontas mine run.....	Columbus.....	3.45	3.25	3.25	3.00@	3.25								
Pocahontas screenings.....	Columbus.....	2.40	2.35	2.15	2.15@	2.40								
Pocahontas lump.....	Chicago.....	5.25	5.65	5.00	4.75@	5.25								
Pocahontas mine run.....	Chicago.....	3.15	2.50	2.65	2.25@	3.25								
*Smokeless mine run.....	Boston.....	5.95	5.90	5.90	5.75@	5.90								
Clearfield mine run.....	Boston.....	2.25	2.10	2.05	1.75@	2.25								
Cambria mine run.....	Boston.....	3.00	2.80	2.70	2.35@	3.00								
Somerset mine run.....	Boston.....	2.20	1.90	1.90	1.50@	2.10								
Pool 1 (Navy Standard).....	New York.....	3.45	3.15	3.10	2.75@	3.00								
Pool 1 (Navy Standard).....	Philadelphia.....	3.35	2.80	2.80	2.75@	2.85								
Pool 1 (Navy Standard).....	Baltimore.....	3.20	2.75	2.60	2.60									
Pool 9 (Super. Low Vol.).....	New York.....	2.85	2.55	2.55	2.35@	2.60								
Pool 9 (Super. Low Vol.).....	Philadelphia.....	2.95	2.40	2.40	2.30@	2.50								
Pool 9 (Super. Low Vol.).....	Baltimore.....	2.85	2.55	2.40	2.25@	2.40								
Pool 10 (H. Gr. Low Vol.).....	New York.....	2.45	2.25	2.25	2.00@	2.35								
Pool 10 (H. Gr. Low Vol.).....	Philadelphia.....	2.55	2.20	2.20	2.00@	2.35								
Pool 10 (H. Gr. Low Vol.).....	Baltimore.....	2.40	2.25	2.15	2.00									
Pool 11 (Low Vol.).....	New York.....	2.15	1.95	1.95	1.85@	2.10								
Pool 11 (Low Vol.).....	Philadelphia.....	2.35	1.90	1.90	1.75@	2.00								
Pool 11 (Low Vol.).....	Baltimore.....	2.10	2.10	1.85	1.75									
High-Volatile, Eastern														
Pool 54-64 (Gas and Steam).....	New York.....	1.90	2.00	1.95	1.55@	1.80								
Pool 54-64 (Gas and Steam).....	Philadelphia.....	2.00	1.75	1.75	1.75									
Pool 54-64 (Gas and Steam).....	Baltimore.....	1.85	1.85	1.65	1.60									
Pittsburgh sc'd. gas.....	Pittsburgh.....	2.75	2.50	2.95	2.85@	3.00								
Pittsburgh mine run (steam).....	Pittsburgh.....	1.95	1.85	2.10	2.00@	2.15								
Pittsburgh slack (gas).....	Pittsburgh.....	1.65	1.60	1.45	1.40@	1.50								
Kanawha lump.....	Columbus.....	3.50	3.40	3.25	3.00@	3.25								
Kanawha mine run.....	Columbus.....	2.20	2.15	2.15	1.75@	2.25								
Kanawha screenings.....	Columbus.....	1.25	1.15	1.15	1.10@	1.25								
Hocking lump.....	Columbus.....	3.25	3.15	3.25	3.00@	3.50								
Hocking mine run.....	Columbus.....	2.15	2.15	2.15	2.00@	2.25								
Hocking screenings.....	Columbus.....	1.20	1.10	1.20	1.15@	1.30								
Pitts. No. 8 lump.....	Cleveland.....	3.25	3.25	3.25	3.00@	3.50								
					Midwest									
Pitts. No. 8 mine run.....	Cleveland.....	\$2.10	\$2.20	\$2.25	\$2.15@	\$2.25								
Pitts. No. 8 screenings.....	Cleveland.....	1.40	1.20	1.25	1.20@	1.30								
Franklin, Ill. lump.....	Chicago.....	3.55	3.80	3.55	3.00@	4.05								
Franklin, Ill. mine run.....	Chicago.....	3.00	2.90	3.15	2.50@	3.50								
Franklin, Ill. screenings.....	Chicago.....	2.00	1.90	1.90	1.25@	2.65								
Central, Ill. lump.....	Chicago.....	3.15	2.65	2.65	2.00@	3.00								
Central, Ill. mine run.....	Chicago.....	2.50	2.40	2.40	2.00@	2.75								
Central, Ill. screenings.....	Chicago.....	1.60	1.65	1.65	1.25@	2.25								
Ind. 4th Vein lump.....	Chicago.....	3.15	2.90	2.90	2.35@	3.25								
Ind. 4th Vein mine run.....	Chicago.....	2.60	2.50	2.50	2.25@	2.75								
Ind. 4th Vein screenings.....	Chicago.....	1.75	1.70	1.70	1.50@	2.15								
Ind. 5th Vein lump.....	Chicago.....	3.00	2.75	2.75	2.25@	3.25								
Ind. 5th Vein mine run.....	Chicago.....	2.45	2.40	2.40	2.00@	2.75								
Ind. 5th Vein screenings.....	Chicago.....	1.85	1.70	1.70	1.35@	2.10								
Standard lump.....	St. Louis.....	2.15	2.25	2.25	2.00@	2.50								
Standard mine run.....	St. Louis.....	1.75	1.75	1.75	1.60@	1.75								
Standard screenings.....	St. Louis.....	0.95	0.85	0.85	0.85									
West Ky. lump.....	Louisville.....	2.55	2.75	2.70	2.50@	3.00								
West Ky. mine run.....	Louisville.....	1.90	2.10	2.10	1.90@	2.55								
West Ky. screenings.....	Louisville.....	1.50	1.45	1.40	1.15@	2.00								
					South and Southwest									
Big Seam lump.....	Birmingham.....	3.80	3.50	3.40	3.25@	4.05								
Big Seam mine run.....	Birmingham.....	2.50	2.25	2.15	2.00@	2.25								
S. E. Ky. lump.....	Louisville.....	3.65	3.45	3.50	3.25@	3.60								
S. E. Ky. mine run.....	Louisville.....	2.25	2.25	2.25	2.00@	2.35								
S. E. Ky. screenings.....	Louisville.....	1.45	1.25	1.40	1.25@	1.75								
Kansas lump.....	Kansas City.....	5.25	5.40	5.40	5.50									
Kansas mine run.....	Kansas City.....	4.40	4.25	4.25	4.25@	4.50								
Kansas screenings.....	Kansas City.....	3.15	3.25	3.25	3.25									

* Gross tons, f. o. b. vessel, Hampton Roads.

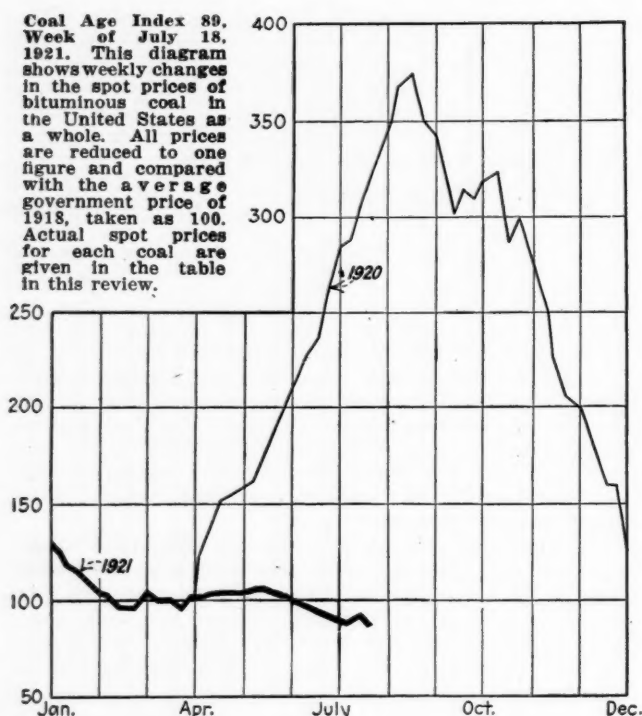
† Advance over previous week shown in heavy type, declines in italics.

Current Quotations—Spot Prices, Anthracite—Gross Tons, F. O. B. Mines

	Market Quoted	Freight Rates	July 5, 1921				July 12, 1921†				July 19, 1921†			
			Independent	Company	Independent	Company	Independent	Company	Independent	Company	Independent	Company	Independent	Company
Broken.....	New York.....	\$2.61	\$7.85@	\$8.15	\$7.40@	\$7.75	\$7.85@	\$8.15	\$7.40@	\$7.75	\$7.75@	\$8.00	\$7.40@	\$7.75
Broken.....	Philadelphia.....	2.66	8.00@	8.20	7.55@	7.85	8.00@	8.20	7.55@	7.85	8.00@	8.20	7.55@	7.85
*Broken.....	Chicago.....	5.62	12.75	12.70	12.70		12.75		12.70		12.75		12.70	
Egg.....	New York.....	2.61	7.85@	8.50	7.40@	7.75	7.80@	8.25	7.40@	7.75	7.75@	8.00	7.40@	7.75
Egg.....	Philadelphia.....	2.66	8.00@	8.20	7.55@	7.85	8.00@	8.20	7.55@	7.85	8.00@	8.20	7.55@	7.85
Egg.....	Chicago.....	5.62	12.60	12.70	12.70		12.60		12.70		12.60		12.70	
Stove.....	New York.....	2.61	8.15@	8.60	7.70@	8.10	8.40@	8.50	7.70@	8.10	8.00@	8.25	7.70@	8.10
Stove.....	Philadelphia.....	2.66	8.25@	8.70	7.90@	8.25	8.25@	8.70	7.90@	8.25	8.40@	8.50	7.90@	8.25
*Stove.....	Chicago.....	5.62	13.20	12.95	12.95		13.20		12.95		13.20		12.95	
Chestnut.....	New York.....	2.61	8.00@	8.60	7.70@	8.10	7.80@	8.10	7.70@	8.10	7.65@	7.90	7.70@	8.10
Chestnut.....	Philadelphia.....	2.66	8.25@	8.60	7.80@	8.25	8.25@	8.60	7.80@	8.25	8.25@	8.60	7.80@	8.25
*Chestnut.....	Chicago.....	5.62	12.95	12.95	12.95		12.95		12.95		12.95		12.95	
Pea.....	New York.....	2.47	4.75@	5.00	5.95@	6.45	4.75@	5.00	5.95@	6.45	4.50@	5.00	5.95@	6.45
Pea.....	Philadelphia.....	2.38	5.50@	6.25	6.00@	6.20	4.50@	6.25	6.00@	6.20	4.50@	6.00	6.00@	6.20
*Pea.....	Chicago.....	5.62	10.90	11.20	11.20		10.90		11.20		10.90		11.20	
Buckwheat No. 1.....	New York.....	2.47	2.75@	3.25	3.50		2.60@	3.00	3.50		2.65@	3.00	3.50	
Buckwheat No. 1.....	Philadelphia.....	2.38	1.75@	2.25	3.50		2.50@	3.00	3.50		2.50@	3.00	3.50	
Rice.....	New York.....	2.47	1.75@	2.25	2.50		1.60@	2.00	2.50		1.60@	2.00	2.50	
Rice.....	Philadelphia.....	2.38	1.75@	2.25	2.50		1.75@	2.00	2.50		1.75@	2.00	2.50	
Barley.....	New York.....	2.47	0.75@	1.50	1.50		0.60@	1.25	1.50		0.60@	1.25	1.50	
Barley.....	Philadelphia.....	2.38	0.75@	1.50	1.50		0.75@	1.25	1.50		0.75@	1.25	1.50	
Birdseye.....	New York.....	2.47	.....	.....	2.50		.....	.....	2.50		.....	.....	2.50	

* Prices and freight rates net tons; quotations f.o.b. cars, Chicago.

† Advances over previous week shown in heavy type, declines in italics.



000 net tons—was a little more than half the dumpings for foreign account in the week preceding.

Tidewater movement increased during June. Total dumpings at the five Atlantic coal ports were 4,492,000 net tons, an increase over May of 705,000 tons, and the heaviest since November, 1920. The increase was largely due to the heavy export demand resulting from the British miners' strike. Of the total foreign shipments—2,040,000 net tons—1,480,000 tons, or 74 per cent, went from Hampton Roads. This was but 35,000 tons less than the record for that port set in October, 1920. Exports from other ports increased somewhat.

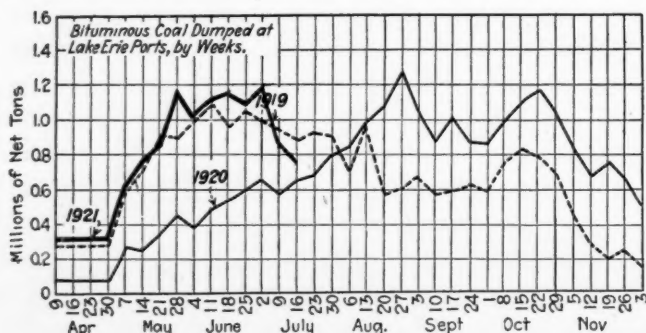
The tonnage for bunker increased from 861,000 in May to 914,000 in June, and shipments to New England from 581,000 tons to 720,000 tons.

TIDEWATER BITUMINOUS COAL SHIPMENTS FOR MAY AND JUNE, 1921

(In thousands of net tons)						
Destination	New York	Phila- delphia	Balti- more	Hampton Roads	Charles- ton	June May Total Total
Coastwise to New England...	99	44	72	505	..	720 581
Exports.....	108	388	1,480	64	2,040	1,559
Bunker.....	408	36	60	406	4	914 861
Inside coasts.....	170	54	27	..	251	247
Other tonnage.....	485	1	..	77	4	567 539
June.....	992	359	574	2,495	72	4,492 ..
May totals....	956	327	443	2,031	30	..... 3,787

ANTHRACITE

Reports from the anthracite consuming territory generally record a notable slackness to household consumer buying of domestic sizes and premonitions that a larger share of the output must find its way to producer storage



or mine operation be curtailed. As a matter of fact the situation will cure itself for, as independents no longer able to obtain premiums on domestic sizes and unable to get adequate prices on steam sizes are closing down, the problem becomes easier for those who remain. Nothing short of unexpected labor trouble can now prevent the country going into winter well supplied with hard coal. Prices are steady in the East but have dropped in Chicago. More detail on the record output of hard coal this year will be found in the news columns of this issue.

BYPRODUCT COKE

The Geological Survey resumes the publication of current statistics of the output of byproduct coke, which were discontinued at the close of the war. Returns for the month of June are summarized as follows:

The total output of byproduct coke for June—in part estimated—was 1,540,000 net tons. In comparison with the monthly average for 1920 this was a decrease of 1,025,000 tons, or 40 per cent. As the present maximum capacity of the byproduct ovens in this country is in round numbers 3,510,000 tons of coke per month, it will be seen that the industry was operating during the month of June at only 44 per cent of capacity.

The coal charged in the month of June is estimated at 2,210,000 tons. The normal monthly consumption of the ovens, assuming 85 per cent operation, would be 4,300,000 tons.

MONTHLY OUTPUT OF BYPRODUCT COKE IN THE UNITED STATES (a)

	Coke Produced	Coal Charged
1917 Monthly average.....	1,870,000	2,625,000
1918 Monthly average.....	2,166,000	3,072,000
1919 Monthly average.....	2,095,000	2,988,000
1920 Monthly average.....	2,565,000	3,685,000
June, 1921.....	1,540,000	2,210,000

(a) Excludes screenings and breeze.

BEEHIVE COKE

Beehive coke is headed for the nadir, with the country down to a daily average of 7,000 tons against 60,000 tons a day a year ago. Prices of coke in the Connellsville region are so low that operators can make more money shipping coal in competition with union coal.

Estimates of Production

FROM THE WEEKLY REPORT OF THE GEOLOGICAL SURVEY
(NET TONS)

BITUMINOUS COAL

Total Bituminous, Including Coal Coked

	1921 Calendar Year to Date	1920 Calendar Year to Date (a)
June 25b.....	7,704,000	10,566,000
Daily average.....	1,284,000	1,759,000
July 2.....	7,640,000	10,286,000
Daily average.....	1,273,000	1,714,000
July 9c.....	6,163,000	9,659,000
Daily average.....	1,233,000	1,932,000

(a) Less one day's production during New Year's week to equalize number of days covered for the last two years. (b) Revised from last report. (c) Subject to revision.

ANTHRACITE

	1921 Calendar Year to Date	1920 Calendar Year to Date (a)
June 25.....	1,847,000	1,870,000
July 2.....	1,868,000	1,778,000
July 9c.....	1,525,000	1,541,000

(a) Less one day's production during New Year's week to equalize number of days covered for the last two years. (b) Revised from last report. (c) Five-day week.

BEEHIVE COKE

	1921 Calendar Year to Date	1920 Calendar Year to Date (a)
July 9.....	34,000	46,000
July 10.....	361,000	3,432,000

(a) Subject to revision. (b) Revised from last report. (c) Less 2 days' production during New Year's week to equalize number of days covered for last two years.

Foreign Market And Export News

British Mines Slow to Resume

Production Disappointing as to Quantity—Principal Companies Withdraw Quotations—Some Prices Stiffen—French Output and Stocks Decline—Ruhr Conditions Have Not Improved Over April.

Expectations of early resumption of production of coal in South Wales are proving to have been too optimistic, for, although the men have gone back to work, coal is coming forth in disappointing quantities. No official figures of output in the first two weeks of July have as yet been issued but cable advices to *Coal Age* from London are to the effect that because of the lack of production the principal companies have withdrawn their quotations for July. Next week the government will release statistics of production for the entire coal field. Production of coal in the United Kingdom from April 4 to July 2—that is, during the three months of the strike—was but 179,000 gross tons, practically all of which came from out-crop workings where miners were able to get out small quantities for local use.

Prices have increased on some coals. Best Admiralty large coal, f.o.b. Cardiff is quoted at 47s. 6d. @ 50s., unchanged from last week; but best Cardiff smalls are in urgent demand for bunkering and prices increased from 24s. @ 25s., as quoted last week, to 25s. @ 30s. Tyne primes were unchanged from last week at 40s. @ 42s. 6d. Quotations on best steams, Newcastle, increased to 45s. @ 50s. from around 40s. a week ago.

Decreases in both production and stocks of coal in France in May are shown in official reports just given out by the government and cabled to *Coal Age*. Output in May, exclusive of the Saar, was 2,108,000 metric tons of coal and 54,000 tons of lignite, compared with 2,258,000 tons of coal in April. Stocks of coal at the mines at the end of May were 1,363,000 tons, a decrease from 1,556,306 tons at the end of April.

Production of coal in the Ruhr district of Germany in June was 7,500,000

metric tons. The production of this field was in excess of 8,000,000 tons in January and February of this year but declined to about 6,000,000 tons in March because of labor troubles.

American coal is now (July 16) quoted at Milan at 295 @ 305 lire per ton, compared with 305 @ 315 lire per ton for best Cardiff steam coal.

French Market Offered British Coal at Low Prices

(Paris Correspondent of *Coal Age*)

There is nothing very important to report since last week. The British strike having ended, coal exporters from that country are turning all their efforts to the resumption of the important French coal trade, and the market here is flooded with offers at surprisingly low figures. For instance, coal briquets are being offered at 30 fr. less than the average French cost price, whereas before the strike the South Wales manufacturers pretended not to be able to manufacture this commodity at less than 60s. Newcastle first brands of gas coals are offered for shipment during August and September at 42s. 6d. and good seconds at 40s. f.o.b. Tyne ports. Foundry coke is quoted 50s. per ton and gas coke 40s. For all this, French buyers are still holding off on industrial coals, some important dealers in house descriptions being the only ones ready to buy now for the usual winter stocks.

Industrial conditions go on showing some improvement, and as a consequence many claims are forthcoming against the slackening of arrivals of German coals; also against any possibility of their increase in price, which seems to be the object of many officials on the other side of the Rhine. From October last to the end of April, France

received in all a little over seven million tons of German coal, but as according to the Spa arrangement France was normally entitled to a little over fifteen million tons, this item shows a deficit of five million tons which certain French industrials want Germany to make up.

Hampton Roads Faces a Dull Month

Exports of coal through Hampton Roads dropped off very noticeably this past week, for which the settlement of the British strike is held responsible. The greater portion of the coal shipped last week went to the United Kingdom, indicating that if the British mines are again opened to their full capacity the export trade will fall off more.

Accumulations at tidewater this week remained at practically the same figures of last week, although vessel tonnage awaiting cargo at the end of the week was negligible. All piers experienced a very dull week.

For Africa:	Tons
Br. SS. Hartfield for Dakar.....	6,544
For Atlantic Islands:	
Br. SS. Ayelsbury for Tenerife.....	4,645
For Brazil:	
Fr. SS. Hugo Stinnes for Rio de Janeiro.....	6,226
For Cuba:	
Br. SS. Berwindvale—for Havana.....	7,968
Dan. SS. Brynhild—for Havana.....	3,208
For Denmark:	
Am. SS. Winneconne for Copenhagen.....	3,754
Grk. SS. Eftichia Vergotti for Copenhagen.....	4,891
For Egypt:	
Br. SS. Jessierie for Port Said.....	6,350
For France:	
Br. SS. Eirene for Bordeaux.....	5,948
For Greece:	
Ger. SS. Edmund Seimers for Piraeus.....	8,027
Grk. SS. Eugenie S. Embiricos for Piraeus.....	8,337
Br. SS. Clan Macinnes for Piraeus.....	6,161
For Italy:	
Am. SS. City of St. Joseph for Genoa.....	1,196
Ital. SS. Filippo Artelli for Trieste.....	7,753
Ital. SS. Lilyada for Reggio Calabria.....	5,623
For Russia:	
Nor. SS. Thorgerd for Petrograd.....	3,645
Br. SS. Coatsworth for Petrograd.....	3,412
For Spain:	
Span. SS. Cabo Espartel for Seville.....	2,614
For Turkey:	
Nor. SS. Thomas Krag for Constantinople.....	4,766
For United Kingdom:	
Am. SS. Volunteer—for Falmouth.....	10,250
Am. SS. John Stevens—for Falmouth.....	6,991
Jap. SS. Yomei Maru—for Land's End.....	8,387
Br. SS. Apsley—for Manchester.....	5,382
Br. SS. Lena—for Queenstown.....	5,722
Span. SS. Upo Mendi—for Queenstown.....	5,405
Br. SS. Great City—for Queenstown.....	9,997
Br. SS. Eastern City—for Queenstown.....	8,531
Nor. SS. Thordis—for Queenstown.....	5,695
Br. SS. Sudbury—for Queenstown.....	5,702
Br. SS. Glendhu—for Queenstown.....	5,957
Am. SS. Tenaflly—for River Thames Port.....	5,321
For Gibraltar:	
Br. SS. Valdura.....	7,502
Ital. SS. Amista.....	7,015
Nor. SS. Joseph J. Cuneo—for Santiago.....	757

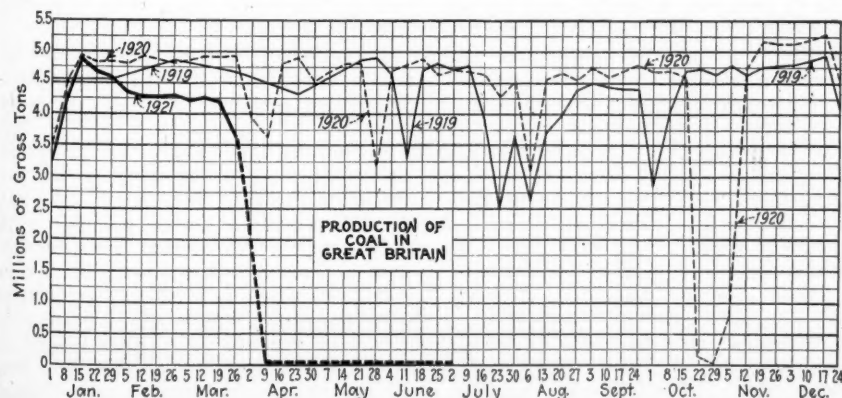
C. I. F. PRICES—AMERICAN COAL—GROSS TCNS JULY 16

United Kingdom.....	\$11.10	Havana.....	\$8.30
Malmö.....	11.90	Santiago.....	8.95
Copenhagen.....	12.00	Guantanamo.....	8.90
Stockholm.....	12.10	Hamburg.....	11.10
Antwerp.....	11.10	French Atlantic.....	11.35
Alexandria.....	12.75	Lisbon.....	11.40
Constantinople.....	13.00	Algiers.....	11.65
Gibraltar.....	11.30	Marseilles.....	12.20
Rio de Janeiro.....	10.50	Piraeus.....	12.30
Buenos Aires.....	10.40	Port Said.....	12.80

Bunker Prices—Gross Tons

(Foreign quotations by cable to *Coal Age*)

Welsh Coal:	
Gibraltar.....	70s. f.o.b.
Port Said.....	84s. f.o.b.
Singapore.....	95s. f.o.b.
Rio Janeiro.....	100s. f.o.b.
Genoa.....	73s. trimmed
Antwerp.....	150 @ 160 fr., trimmed
Belgian Coal:	
Antwerp.....	140 @ 150 fr., trimmed
American Coal:	
Baltimore.....	\$6.15 @ \$6.40 trimmed
New York, Pool 9.....	\$6.15 @ \$6.30 f.o.b.
Pool 10.....	\$5.90 @ \$6.10 f.o.b.
Hampton Roads:	
Pool 5, 6, 7.....	\$5.35 @ \$5.50 f.o.b.
Pool 1, 2.....	\$6 @ \$6.25



Average Daily Italian Coal Receipts in Italian Controlled Vessels

(In Metric Tons)		
Port	May, 1920	May, 1921
Trieste.....		1,039
Ancona.....	845	1,007
Civitavecchia.....	1,062	1,002
Leghorn.....	1,127	1,000
Genoa.....	886	988
Spezia.....		960
Naples.....	1,066	958
Palermo.....	1,060	934
Brindisi.....	970	858
Messina.....		824
Taranto.....		637
Savona.....	1,005	615
Santo Stefano.....		508
Torre Annunziata.....	1,032	
Venice.....	784	

AUSTRIAN RAILROADS HAVE PURCHASED 90,000 tons from the mines of the Sarre, this tonnage to be delivered in June, July and August at a rate of 30,000 per month.

DURING MAY, 1921, the Port of Rouen received only 33,329 tons of coal through Rotterdam, Ghent and Ant-

werp. On the other hand 99,103 tons of coal and coke were exported largely to the United Kingdom.

THE AUSTRALIAN GOVERNMENT has placed an embargo on the exportation of coal, according to recent cable advices.

French Output and Coal Stocks

April production and stocks of coal in France are shown by the following table, as published by the *Journal des Charbonnages*, correcting the original figures printed in *Coal Age*, (June 30, 1921, p. 1177). The output, exclusive of the Sarre, was 2,257,444 metric tons as compared with 1,817,430 in April, 1920. Total coal stocks at the mines on hand April 30 were 2,033,961 tons as against 4,500,000 on Jan. 1, 1921. Recent Paris reports state that coal stocks had decreased to approximately 700,000 tons at the end of the British strike.

PRODUCTION AND STOCKS OF COAL IN FRANCE, APRIL, 1921
(IN METRIC TONS)

District	Total Mined		Stocks at Mines, April 30, 1921			
	Coal	Lignite	Coal	Lignite	Coal	Briquets
Arras.....	690,107		415,992		19,238	2,663
Douai.....	392,045		358,669		9,744	15,973
Saint-Etienne.....	275,437		249,725		16,152	15,385
Lyon.....	211,554		155,233	580		5,090
Clermont-Ferrand.....	106,615	36	72,597	187		
Alais.....	156,692	1,296	103,235	76	10	21,673
Toulouse.....	135,225	423	89,103	1,796	5,474	21,102
Marseille.....	1,830	55,500	4,310	15,018		
Nantes.....	6,840		10,879			242
Bordeaux.....	6,112	1,440	11,408	295		1,529
Nancy.....	8,283	58,706	8,653	5	6,800	
Strasbourg.....	267,304		86,502		5,145	
Total.....	2,257,444	117,401	1,566,306	17,957	62,563	83,657
Sarre.....	693,083		467,655		2,282	
Grand total.....	2,950,527	117,401	2,033,961	17,957	64,845	83,657

Germany's April Production Slumps

Shipments from the Ruhr in April, although in the aggregate a little higher than in March, show a decrease of 4,000 tons daily compared with the latter month. Nearly 400,000 tons were taken from the pit reserves. Daily production has therefore fallen short of March by approximately 15,000 tons. In Upper Silesia, production came to an almost complete stoppage on April 23 because of the renewed political troubles. April production figures and the output for the first four months of 1921 are shown as follows:

	April, Tons	January-April, Tons
Lower Silesia.....	438,813	1,638,266
Aix-la-Chapelle.....	221,820	1,692,791
Ruhr District.....	7,894,985	32,133,350
Upper Silesia.....	1,630,000	10,243,916
	10,185,618	45,708,323

April production in Prussia was 10,185,000 tons, as against 11,243,596 tons in March, which was lower than those of the two preceding months. The following figures, representing production during the first four months of 1921, show the drop since March:

	Tons
January.....	11,985,534
February.....	11,943,371
March.....	11,243,596
April.....	10,185,618

No shortage has actually made itself felt, partly due to the business depression resulting in decreased consumption, and also to the fact that only a part of the Upper Silesian production is shipped to Germany proper.

Reports From the Market Centers

New England

BOSTON

Slight Interest in Prices—Operators Figure Hard to Keep Mines Working—Coal at New York Piers Absorbed Only With Difficulty—Hampton Roads Quiet.

Bituminous—A few buyers are attempting to negotiate purchases, but these are for continuing delivery over a period, and shippers are not inclined to quote the spot basis for deferred shipment. But little progress is made, although there is ground for the feeling in some quarters that the next few weeks will see the ebb point in prices. Buyers make inquiry only for modest tonnages, and a very slight increase in the present movement of steam grades would be sufficient to meet all requirements. Reserves are still large among most manufacturers and there is no present intention to keep stocks much above their present level for the next few months. Few will consider carrying over much tonnage beyond April

1, for the trend of opinion is toward a lower price basis.

On the other hand, the more representative Pennsylvania operators are leaving no stone unturned to get business for July and August. Every inquiry is sifted; current quotations on Hampton Roads coal are closely watched for their bearing on orders at competitive points and all who are interested in coal at first hand are figuring hard to keep mines in operation at least two or three days a week. Consuming territory is being secured for places to put coal, and those with foreign connections are making efforts in that direction to move enough to help reduce mining costs. The producer's problem unusually is intricate; if only output could be raised to something like a 5-day week basis he would be in much better position to concede the price basis a few mill buyers are now willing to consider.

Those agencies which have started coal for Tidewater with a view to orders turning up later have been much disappointed. At New York and at Philadelphia, in particular, pier coal

has been absorbed only with great difficulty, and the immediate prospect is anything but encouraging. There have been such shrinkages in value recently that the volume offering is likely to be less.

Pocahontas and New River at Hampton Roads also meet only a much restricted demand. Some shippers are finding a somewhat better reaction in their favor off shore, but the coastwise market is still very quiet. By reason of lower freights on sailing vessels from Hampton Roads the smokeless shippers are able to take occasional business that during recent years seemed allocated to Pennsylvania interests, but the tonnages are small. The real significance of such sales lies in the fact that under the present high all-rail tariffs, coal by water, especially east of Portland, Me., will have the preference.

It is interesting to notice that receipts through the Hudson River transfer points continue on about the same average that was maintained in June. The railroads are taking coal in enough better volume to offset what is not being shipped commercially, although there is a certain tonnage of small scattering purchases on the spot market that must be taken into account. A considerable number of steam users have been obliged to have contract shipments withheld because of physical inability to take on the coal. Consumption continues on a light basis in most indus-

tries, and few will buy very far in advance of actual needs, especially during a season when they have been trying hard to liquidate reserves piled up at high prices a year or so ago.

Anthracite—Under all the circumstances the trade feels that demand is keeping up remarkably well. Shipments have not been made so freely as buyers expected, and among retail dealers there is still a tendency to be cautious about declining deliveries. Conservative coal men here feel very strongly that when the household trade begins buying it will come with a rush, and for that reason the average dealer will take on all he can store and all he can finance.

At retail there is no improvement. In the larger cities, especially, people are not buying and the distributors are tying up equipment.

Tidewater—East

NEW YORK

Anthracite Demand Easier—Independents Make Concessions—Steam Coal Dull—Smaller Bituminous Stocks Strengthen Quotations—Buyers Remain Out of Market.

Anthracite—Market conditions are not encouraging. Buying is lagging but so far the operating companies are not experiencing any trouble in disposing of production. While the demand in this market is easy shippers are sending heavy tonnages westward where conditions are brighter.

Independent operators are forced to make concessions if they want business. There has been a further decline in quotations but in some cases sales show slight premiums above the company schedules. This is particularly true with regard to stove coal.

Pea is being sent to the stock piles. Demand shows no improvement and quotations are easy. Steam coals continue to move slowly. Demand is dull and large quantities are being stored. Quotations for buckwheat alongside were around \$5.25; rice \$4.25 and barley in some instances was quoted slightly above the freight charges.

Bituminous—There is a tendency to better prices due chiefly to less coal sent to this market, but this improvement is not general. Demand from New England showed a slight improvement and there was a belief among the local houses that consumers were about ready to enter the buyers market.

There was less coal on the local piers on July 15 than on July 8, tabulations showing 290 cars in the pools and 855 cars outside, as compared with 286 cars and 1,444 cars respectively the previous week. During the first 15 days of the present month there were 4,972 cars dumped over the local piers as compared with 5,353 cars in the corresponding period of last month.

The export market is quiet. Inquiries are fewer. One sale of a cargo of screened gas coal for Copenhagen

shipment at around \$12.65 was reported.

With coal not in abundance at the local piers quotations for Pool 1 ranged \$6.25@6.50; Pool 9, \$5.95@6.15 and Pool 10, \$5.65@5.85. While alongside bunker quotations ranged about the same, plus 35c. water freight, there were instances where loaded cargoes were quoted at figures slightly lower.

PHILADELPHIA

Anthracite Remains Quiet—Consumers Obstinate—Capacity Stocks in Yards—Bituminous Unfavorable—Buying Moderate—Prices Unchanged.

Anthracite—Lack of retail demand reached lower levels this week and dealers are not working to more than 20 per cent of capacity. They are laying off help and carrying only a minimum of men about the yards, and the general belief is that there will be no need to add to their forces until well into the fall.

The trade is still endeavoring to convert dilatory customers to the necessity of taking in their coal now, especially those who have done so in other years. Behind all the sluggishness is the belief that coal must be lower in price, despite all the arguments of the coal man to the contrary.

Producing companies still claim to be operating full time. It is a certainty that no size of coal larger than pea is going into the storage yards, and the only explanation is that the West continues to take a good percentage of production. The only size really wanted here is stove.

Steam sizes do not improve. A fair tonnage of buckwheat is being taken on contract, but the surplus is without a market. Rice is even weaker, and barley is almost uncalled for.

Bituminous—Trade at this time is at least not worse than the preceding period of ten days, but is really at a standstill. It frequently happens when the consumer does want coal, even only two or three cars, he will invite quotations from a number of shippers in order to get the benefit of the lowest possible price. This method is responsible for some low prices recently on good coals.

The best buyers at this time are the railroads, although they are not taking supplies in anything like the tonnage of other years. Prices on this are even lower than the market and for that reason there are many shippers who will not make any offers whatever for it, and due to the further fact that payment is likely to be deferred.

Market prices have not changed during the week, yet some shippers still feel that possibly lower figures might prevail, and are still buying lightly. There is nothing to the contract market, as the consumer seems utterly uninterested and the producer makes no effort to tie him up.

There are some very optimistic people in the trade who hope for a revival even before September. They base this on the recently lowered steel

prices being sufficient to produce some orders in that line and thus encourage the purchase of coal in anticipation of a renewal in that industry in the fall.

HAMPTON ROADS

Tonnage Declines—Prices Soften—Accumulations Practically Unchanged.

Coal business at the piers fell off during the week very materially, a total of only approximately 300,000 tons of coal being dumped. Coal dealers here are feeling the pinch of this reduced activity, especially, since the month of June was the busiest in the history of the trade.

Pools 5, 6 and 7 are \$5.10@5.25, Pools 1 and 2, \$5.75@6, f.o.b. piers.

A comparison of the situation at the piers is as follows:

	Week Ended July 7	Week Ended July 14
Norfolk & Western piers, Lamberts Point		
Cars on hand.....	3,568	3,450
Tons on hand.....	180,532	162,774
Tons dumped.....	206,228	135,316
Tonnage waiting.....	38,207	54,375
Virginian Ry. piers, Sewalls Point—		
Cars on hand.....	2,105	1,984
Tons on hand.....	105,250	38,586
Tons dumped.....	106,842	145,428
Tonnage waiting.....	8,969	696
C. & O. piers, Newport News—		
Cars on hand.....	2,136	2,224
Tons on hand.....	106,760	111,200
Tons dumped.....	167,944	144,230
Tonnage waiting.....	100,375	40,605

BUFFALO

Trade Not Improving—Operations Curtailed—Much Distress Tonnage—Lake Shipping Active—Anthracite Consumers Buy Sparingly.

Bituminous—The movement is perhaps lighter than it was. Consumers will not stock and are allowing their stocks to run down, to all appearance. There have been depressions in the trade, but this one exceeds any other recent ones, nothing is appearing that looks like a change for the better.

Ask any mine owner what his operations are and he will say that they are mostly suspended. He finds that he can get coal enough floating about on the market to meet his requirements and most of it for less than it would cost him to turn it out. The Canadian bituminous trade is quite dull.

With matters as they are the prices are as small as ever, being not more than \$3 for Youghiogheny gas lump, \$2.75 for Pittsburgh and No. 8 steam lump, \$2.50 for Allegheny Valley mine run and \$1.50@1.75 for slack.

Anthracite—Demand does not increase and it is not expected to do so till the hot spell is over. The warning is given out by shippers that if coal is not laid in now it may not be had in winter, but no heed is paid to it.

Independents are trying to hold up their premiums and at the same time keep the consumers buying. They are sending out their circulars to bituminous jobbers, trying to keep up the interest, but it is not easy.

Lake—Shipping agents complain that they cannot get as much coal to handle as they want. If the stocks continue to pile up on the upper docks it may be hard to find room for coal there

before the fall demand sets in. Loadings for the week ended July 9 were 128,600 net tons, of which 66,100 tons cleared for Duluth and Superior, 25,700 for Chicago, 18,800 for Milwaukee, 8,500 for Fort William, 7,500 for Sheboygan, 1,200 for Racine, and 800 for Mackinaw. Freight rates continue easy.

Coke—Demand continues light and does not promise to improve right away. The furnaces are running at such a low rate that most of the local coke plants are entirely idle. Prices are apparently at the bottom, on the basis of \$4.50 for foundry, \$3.75 for furnace and \$3.25 for stock, with a little in domestic sizes selling \$5@5.25.

BALTIMORE

Soft Coal Market on New Low Level—Exports Continue Heavy—Hard Coal Officials Before Baltimore Grand Jury.

Bituminous—An inquiry in the soft coal trade shows that business is traveling on new low levels. Prices are below the spot quotations of a week or so ago and in many cases are below the actual cost of production. The effort of high grade steam producers to hold such coals as run to Pool 9 at \$2.50 or better has proven a failure. At this writing there is plenty of Pool 9 to be had around \$2.25, and not a little has sold at figures between \$2 and \$2.20 in cases of great disposal emergency. Best grade gas coals, Pennsylvania screened, are offering around \$2.25, while West Virginia screened can be had at about \$2.10. West Virginia mine run is having slow sale at quotations all the way from \$1.35 to \$1.60.

The home call continues dreadfully dull, and there is no evidence whatever of manufacturing plants seeking to store in large quantities. The export movement is excellent and for the first nine days of July a movement of more than 140,000 tons cargo and about 18,000 tons bunker was recorded.

Anthracite—With business absolutely at a standstill and the prospects poor for ordering at this time because of a false public impression that prices are to be driven downward, the retail trade has a most difficult problem to combat. Officials of the Baltimore Coal Exchange, following sensational attacks in a particular newspaper, are this week appearing before the Baltimore Grand Jury and being questioned concerning price fixing. Desperate efforts are being made in certain quarters to make the trade a public "goat." Thinking men within the trade, who realize on what a moderate margin of profit the business is run in Baltimore, and the futility of engendering the hope that the legal action, no matter what its outcome, will cut retail prices, are fearful of results this fall and winter.

Should the Grand Jury action force the end of all restraint over the Coal Exchange members, the temptation to run prices up in a rush all market will naturally be strong. The trade believes that the most damaging thing to the public interest at this time is the so-

called effort to aid the buying public by hammering at members of the Exchange.

Northwest

DULUTH

Interior Shipments Slightly Increased—Heavy Receipts Continue — Prices Quietly Shaded.

Shipments to the interior have improved slightly, and in this coal men see some hope for a resumption of trade to such an extent before Aug. 1 that the threatened tie-up of all docks here may be averted.

The cause of the inland movement is the slackness of railroad shipments and the fact that the roads feel that it is now a good time to get coal supplies into their several fueling stations. Should a demand for cars come from another source, it is probable that the coal movement will suffer a setback.

There is also an indication that the larger country dealers are taking on coal, although this resumption of activity is in but minute quantities. It is encouraging, however, to see even the slightest signs of life from sources which have been dormant for so long.

Receipts improved last week and fifty-seven cargoes were received. Of these, five were anthracite. Reports show that cargoes are on the way of which three are hard coal.

Prices remain about the same, with indications of concessions made sub rosa to some buyers, but no outward sign of any further cuts. One company, however, is reported as closing two municipal contracts for screenings at \$3.85, which is 15c. below the market.

Anthracite demand is absolutely dead. Prices hold firm with egg at \$12.75; stove and nut \$12.80, pea \$10.80 and buckwheat \$8.50. A shortage of hard coal in mid-winter will undoubtedly be experienced unless some means is taken to move the stocks on hand here immediately.

MINNEAPOLIS

Sluggish Market Continues—Freight Adjustments a Disappointment—All-Rail Tonnage Low—Strong Competition for Business.

The buyers' strike, both wholesale and retail, continues without much change. So far as the dock interests are concerned, they have done their bit in the way of forwarding a good tonnage of soft coal. Receipts so far are better than 3,000,000 tons over the same period for last year.

Dock companies are in a position to offer a perfect defense if there is any serious shortage of coal this year. They have stocked the docks nearly to their capacity, while the outgo has been very small. It is not a case of asking the other fellow to take all the precaution nor to assume the whole burden. May shipments from the docks were very small and June was somewhat better. But neither has been equal to

a reasonable amount in view of the possibilities.

One of the causes for a holding back of shipments was the anticipated reduction of freight rates on coal to numerous points in the Northwest. The change went into effect July 6, and has proved to be an increase to nearly all points, especially on soft coal. Hard coal has had a few inconsequential reductions, but had 140 increases while bituminous had 170.

The all-rail trade is not getting into action to any great extent, although it is picking off a little business now and then. Coal should be moving to the country from all sources of supply more freely than it has. Some of the large users, public utility concerns and municipal plants, have placed their orders for the winter's needs. In many cases, the prices made were very close and considerably below the price regarded as list—if such a thing exists.

The rail dealers feel that they are sure to get their share of the business when sales begin to stir. They say that the dock trade is fighting tooth and nail for business at a cost which means a loss. The dock men retaliate with a similar charge. From all appearances, the coming active season is going to see some of the giddiest competition that has existed in some years.

MILWAUKEE

Market Continues Dull—No Change in Prices—Receipts by Lake Liberal, and Yards Accumulate Heavy Stocks.

There has been no change in the coal situation at Milwaukee. Business could not be more dull. The demand is very slow, with the result that coal continues to pile up in the dock yards.

Receipts by Lake are liberal, but unless coal is moved out of the yards faster than it is at present, storage room will soon be exhausted. There has been no change in prices, but dealers expect an advance in anthracite about Aug. 1. Milwaukee has received 207 cargoes of coal thus far this season, the receipts aggregating 450,781 tons of anthracite, and 1,308,448 tons of soft coal, which is about double the receipts for the same period last year.

Inland West

CHICAGO

Domestic Market Stagnant—All Efforts to Move Coal Fruitless—Steam Outlook Better.

A number of the most aggressive sales agents have come to the conclusion that all efforts to sell coal are practically useless, and will continue to be so until the public awakens to the situation and decides to buy coal. This state of affairs appears in both the steam and domestic markets.

To give an idea of conditions confronting dealers, we know of one particular firm which has a large and modern coal yard representing an investment of over \$75,000. During the

last two weeks, the total tonnage moved through this yard to the domestic consumer was 4½ tons. Another dealer with a yard in one of the North Shore suburbs moved only 1½ tons during the last three weeks. There is nothing wrong with the coal handled by these gentlemen, or with their sales methods, as they are both up-to-date aggressive business men, representing the highest type of retail dealer. Unemployment is very prevalent and the public is certain that freight rates and coal prices will be reduced before the fall months and in plenty of time to procure a winter's supply of coal. This week the convention of the Illinois and Wisconsin Coal Dealers' Association brought a number of retailers to Chicago, but we have not heard as yet of any operators or wholesalers profiting by it so far as orders booked are concerned.

The outlook for steam coal is a little brighter. People are taking very seriously President Harding's recent statement to the effect that conditions are not only becoming better, but will continue to improve very rapidly. Recent developments seem to indicate that this is so, so far as awakening interest is concerned, and there are evidences of renewed interest on the part of manufacturers in the steam coal market. Industries are not buying, but it looks as if they were planning to in the near future.

COLUMBUS

Stronger Domestic Demand—Steam Business Still Drags—Signs of Reduced Lake Movement—Production Still Low.

Some slight improvement has developed in the demand for prepared sizes. This is not sufficient to give much strength to the market, although it presages better things. Retail stocks are not as large as formerly and dealers are trying to replenish them. There is a fairly good demand for the better grades, such as Pocahontas and Splints. Retail prices are fairly strong at the levels which have maintained for some time. Hocking lump is \$6.50, and West Virginia splints are \$7.50@7.75; Pocahontas lump and egg is \$10. Anthracite is strong around \$15.

Steam business is quiet in every way. Many of the larger users have rather heavy reserves. Manufacturing is slow in resuming and there is practically no increase in consumption of steam grades. Requisitions of railroads are not large.

Lake trade is fairly active. Some congestion at the Upper Lake ports is reported and it is the belief that there will be a reduction in tonnage by the latter part of July. During the week ended July 9 the H. V. Docks loaded 200,538 tons as compared with 176,762 tons the previous week, making a total of 1,940,079 tons for the season. During the same week the T. & O. C. docks loaded 52,632 tons as compared with 58,049 tons the previous week, making 498,555 tons for the season.

CINCINNATI

Smokeless Domestic Coals Soften—Market Very Sluggish—Slack Coal Strengthens with Production.

Smokeless, the king pin of Western coals, has at last been touched by the softness of the market. The breach between West Virginia bituminous offerings and those of Kentucky has widened to a perceptible degree. There have been some inquiries from the Lake, but at prices that do not give much enthusiasm, and the slack market is stronger, as there has been a decrease in the making of lump and block with the falling domestic demand.

Pocahontas and New River are still quoted \$5.50 for lump and block but actual sales have been made around \$5. Nut has been sluggish for some time at \$4.75@5 and has been cut 25c. Mine run can be had \$3@3.50 while slack is quoted at \$3 for best grades. Off grade stock is as low as \$1.75.

West Virginia has been showing the effect of large shipments which have been gathered up for Tidewater. Most quotations have been made \$1.75@2.25, with \$2 as the general run. Better grades of lump are selling \$3@3.50 while others more friable are quoted \$2.50@3.

Kentucky nut and slack turnovers have been made at 90c.@1.25. Mine run is quoted \$1.60@2.20 and there has been no material change in lump and block at \$3@3.50. Retailers hold to the prices established the first of the month.

DETROIT

Inactivity and Lack of Business Outstanding Features of Trade—Receipts Continue in Small Volume.

Improvement in buying demand is of slow development in the bituminous market in Detroit. Jobbers and wholesalers report little demand for either steam or domestic sizes. Consumers of steam coal are manifesting little interest in offerings and retail dealers show no inclination to add to stocks on hand.

In the steam trade the curtailment of buying is ascribed to a continued uncertainty among consumers concerning the probable extent of their requirements. Business in industrial and manufacturing lines is now proceeding haltingly, with production in most instances much short of normal and with a corresponding lessening of consumptive requirements for fuel. This has made it possible for many establishments to work along on reserves, or buying only in small lots.

Some users of steam coal with small requirements believe they will be able to supply their needs this year by purchasing spot coal.

Quotations are at present more of a nominal character than a reflection of the actual market. Lump from Ohio mines is quoted at the mines at \$3@3.25; mine run, \$2@2.50; nut and slack, \$1.10@1.25. West Virginia lump is \$3.25@3.50; mine run, \$2.25@2.50; nut and slack, \$1.90@2.25; smokeless lump and egg, \$5.25@5.50;

mine run, \$3.25@3.50 and nut and slack, \$2@2.25.

Owing to the extreme heat, domestic buyers of anthracite are evincing little interest in putting in a winter supply. Lack of employment and unwillingness to pay the prices asked also are deterrent factors. For prepared sizes retail prices range from \$14.25 to \$14.75.

ST. LOUIS

Local Situation Shows No Improvement—Steam Outlook Very Dismal—Railroads Fail to Store Coal.

There is little variance in the local situation, with the exception that one or two places in the state show a picking up in domestic orders, occasioned by newspaper publicity of the situation as it actually exists. Generally speaking, there is no buying of domestic coal.

The steam situation, if anything, is a trifle worse than last week. In the country there is some demand from flour mills and a little movement at two or three places least expected.

No Cartersville coal is moving in except a little on contract, for which the dealers are being forced to rent additional space for storage. Mt. Olive is coming in on much the same conditions.

A few cars of West Virginia smokeless came in during the past week. Some little tonnage of coke, both by-product and gas house is being ordered for domestic use on account of the low prices.

An idea of how the situation compares with last year is indicated by the coal orders sent in by members of the Employees' Benefit Association of the Union Electric Light & Power Co., at St. Louis. This year the orders are for about 1,600 tons as against almost 7,000 tons last year. Offsetting this is the fact that some of the coal delivered last year may be left over.

CLEVELAND

Sentiment in Coal Trade Somewhat Improved—Activity Gains Slightly—Large Slack Order Placed—Stocks at Lower Lake Docks Diminishing.

The appearance of one or two large inquiries and the closing of a number of substantial contracts in the last few days have served to bring about a slightly better feeling in the coal trade in this district. It is true that largest inquiries have come from public-utility corporations and similar sources, and that the demand from industrial users continues, as it has for months, on a hand-to-mouth basis. Efforts of the administration to finance the railroads and place about \$500,000,000 in their hands are still looked upon as offering a ray of hope. Such a large amount of credit available for the roads would help the industrial situation.

The Cleveland Electric Illuminating Co. has closed a contract for 100,000 tons of No. 8 slack with a northern Ohio coal operator at a price said to be \$1 a ton. Coal dealers expect that the Board of Education's requirements for 40,000 tons of coal will be awarded

soon. Bids have been submitted. Retail dealers say there has been a slight picking up in demand for coal, the result probably of the recent stiffening of anthracite prices and the failure of lower freight rates on coal to appear.

The stocks of coal at lower Lake docks are declining. With the falling off of production and the curtailed movement from the mines to the Northwest destinations, receipts of coal at the docks are less than the dumpings. Shipments up the Lake for the season up to July 11 were 10,765,847 tons, compared with 4,428,105 tons for the corresponding period of 1920, 10,497,770 tons in 1919 and 8,835,433 tons in 1918. Less bunker coal has been sold this year than for three seasons. This is due to the sharp curtailment of vessel operation, the result of the minimum ore shipments now current.

Receipts of bituminous coal at Cleveland for the week are the lowest on record, amounting to some 398 cars, divided into industrial, 307 cars, and retail, 91 cars, as compared with a total of 943 cars the preceding week, or a decrease of 545 cars.

Southwest

KANSAS CITY

Kansas Mines Resume—Domestic Call too Heavy—No Steam Buying.

Mines in Kansas resumed work July 11 and production for the week was above the tonnage produced since the middle of June. The demand for domestic grades exceeds the production. Mines are working only about half-time on account of no demand for steam. With the high cost of production, it is out of the question to store slack and run the risk of spontaneous combustion.

Threshing throughout the wheat belt is in full force and the yield is better than expected. Only the extremely high freight rates will prevent its prompt shipment to market.

Quotations are as follows: Arkansas lump \$7@9.50, slack \$2@2.50; north Missouri lump \$4.50, washed nut \$4.50 @ \$5, washed slack \$3.85, mine run \$3.85, and raw slack \$3@3.15.

South

BIRMINGHAM

Steam Trade Dull and Demand for Domestic Lighter—Prices on Commercial Coal Unchanged.

General demand is light and trade conditions have not improved in any respect. Owing to the uncertainty as to when business depression will begin to lift, industrial demand is confined to requirements of the immediate future, which are provided for in the spot market, and no interests seem willing to stock coal against that uncertain day when plant operation will require a supply of storage coal. The senti-

ment in the trade is that brisk business is not to be expected before next spring.

Mines are now being called upon to restrict shipments against domestic contracts, as dealers are disposing of very little coal in the retail market and most yards have stocked almost to the limit of their capacity.

Labor in the coal fields is plentiful and there has been comparatively little defection to other lines. Wage adjustments, which have been placed in effect at the majority of mines have been received with little or no complaint; in fact the reductions were petitioned for in most instances in order that operators might be enabled to book orders if possible, which would insure more regular work.

LOUISVILLE

Lake Movement Slower—General Demand Quiet—Retail Tonnage Light.

It is said by some coal men that business today is duller than at any previous period since 1907, when the panic resulted in general slow industrial conditions. Producers claim that with industrial conditions slow, plants

are not consuming much steam coal, and employees of such industries are not in any position for stocking coal until it is actually needed. Jobbers report that it is not a question of holding old trade, but of selling at any price at all.

Railroads which have contracted for fuel are not using even the pro rata of the contract amount just now, and are not in the market for fuel. A few of the Southern roads have not closed their contracts as yet, and apparently are in no mood to do so. Public utilities, gas companies, etc., are buying small quantities as needed, and apparently are not worrying much about a probable high market later on.

Reports recently compiled show that in 1920 a total of 32,911 cars of coal, consisting of 1,493,136 tons were stopped off at Louisville, and 64,622 tons of river coal, making a total of 1,545,088 tons, which is about the normal annual consumption for Louisville.

Screenings are a little stronger as a result of reduced production of prepared, especially in movement to Lakes.

News From the Coal Fields

Northern Appalachian

ANTHRACITE

There is practically no change in the anthracite situation this week over last week. The independents are not working as well as they might, due to the fact that they are unable to get any premium over the company prices and because of the difficulty of disposing of steam sizes. Steam coal is a drug on the market and a considerable amount of it is being stocked locally.

The large companies are all working full time, apparently with plenty of orders for domestic sizes.

PITTSBURGH

Operations in Pittsburgh District Especially Light, on Account of Competition by Non-Union Districts.

Mine operations in the Pittsburgh district—the district as it is defined in the trade—are at a very low rate, there having been continued decreases since the spurt in May due to Lake coal movement. The district suffers, as does the coal industry generally, from the lightness of consumptive demand, but in particular it suffers from the competition of non-union districts, including the Connellsville region and parts of West Virginia. This is really the outstanding feature of the situation and there is speculation as to whether anything will come of it by way of a revision in the union mining scale. In the Connellsville region a succession of

sporadic wage reductions culminated in a general reduction April 1, and at the beginning of this month two interests—Rainey and Washington—made additional reductions.

The steel industry has been down to almost no operation in the past two or three weeks, estimates being that the rate in tonnage output is less than 20 per cent of capacity, and coal consumption is correspondingly light. Other industries are almost equally depressed, and as there is no definite prospect of any great improvement in the near future there is practically no disposition to stock coal. Domestic coal is moving very slowly, there being little tendency on the part of householders to lay in winter supplies.

CONNELLSVILLE

One Inquiry for Contract Furnace Coke—Spot Easier—Production Still Smaller.

An inquiry has been before the trade for a few days involving 15,000 tons of furnace coke a month, August and September, for the Wickwire-Spencer Steel Co., Buffalo, which contemplates blowing in a furnace if it can operate it cheaply enough. This is the first inquiry for several months looking to the blowing in of a blast furnace. Predictions are made that about \$3 will be quoted, although many operators with idle plants state that they would not contemplate resuming production unless they could get about \$3.50.

The spot furnace coke market is

weaker, \$3 being as high as is considered. Odd lots to miscellaneous consumers are generally sold at this figure by brokers, who get a margin below that from the operator. These are merely pick-up lots, as not more than two or three operators would run on such a price. While sales of coal are far below the district's capacity, they are at prices much better than is realized by turning the coal into coke.

Foundry coke is not notably changed, but seems softer and sales are of smaller volume. We quote spot furnace coke easy at \$3 and spot foundry at \$4@4.50, depending on brand, per net ton at oven.

The *Courier* reports production in the Connellsville and Lower Connellsville region in the week ended July 9 at 6,200 tons by the furnace ovens, a decrease of 4,230 tons, and 12,200 tons by the merchant ovens, a decrease of 1,010 tons, making a total of 18,400 tons, a decrease of 5,240 tons.

UNIONTOWN

Tight Market Prevails—Coke Prices Soften Further—Demand Quiet.

Classified mines in the coal and coke region are undergoing inspection by pier inspectors with a view to insure proper classification of both the mine and the coal tonnage shipped to the various piers.

A substantial three months' contract for furnace coke at about \$3.25, ovens, was placed this week through W. L. Byers & Co. for the Robeson furnace at Robeson, Pa. The contract calls for delivery of 7,000 tons per month during July, August and September. Delivery is being made from the Herbert Works of the Connellsville Central Coal & Coke Co., which has resumed operations.

While each week is now seeing a slight improvement in the industrial situation the resumption has not become so general as to find a reflection in the fuel market. Brands have much to do in determining the price for the little coke tonnage being sold and prices have a wide variance, the average for furnace, however, being \$2.75@3. For foundry coke there is a wider range of \$3.50@4.50.

An order for 16,000 tons of Pittsburgh vein of coal was shipped this week to piers for export to Holland. The price of the order was not divulged.

EASTERN OHIO

Production Outlook Gloomy—Lake Outlet Closing Slowly—Industrial Consumption at Minimum.

The outstanding feature of the week ended July 9 was a decided slowing down in operations, attributed to the July 4 holiday and curtailment in Lake shipments. Aggregate production was 314,290 tons, or approximately 59.8 per cent of the five-day rated capacity. Based upon a full week's operation output was but 49.8 per cent of capacity and some 83,000 tons under that of the preceding week.

Association mines worked but 55 per

cent, but produced 65 per cent of the total rated capacity of the mines reporting. Figures indicate that operations throughout the field were lower than in some weeks, and there does not seem to be any immediate prospect of improvement.

With the Upper Lake docks rapidly becoming filled to capacity, and no change in the attitude of railroads and other consumers in that section toward commitments, little hope is entertained that the volume of cargo shipping can possibly continue at anything like the present rate; therefore restricted operations in eastern Ohio seem inevitable. The railroads have some 14,000 cars at Lower Lake docks and the amount on hand is diminishing daily, as shipments are less than dumpings.

At least 40 per cent of capacity is being lost weekly by reason of no market and operators are simply marking time awaiting developments. In the iron and steel industry, large consumers of Ohio coal, independents are reported operating at not more than 10 per cent of capacity, while the corporation mills are running about 30 per cent, and other lines are showing little, if any improvement.

UPPER POTOMAC

Production Almost at Standstill—Spot Prices too Low for Acceptance.

Production was largely at a standstill in the Upper Potomac and Georges Creek regions during the week ended July 9, as a result of continued market dullness. Operators as a rule were averse to mining coal under prevailing prices, which were as low as \$2.35@2.45 for Pool 9. Only a few mines were in operation at all in the Upper Potomac. Contract orders were the only ones in evidence, spot business being unattractive.

FAIRMONT AND PANHANDLE

Mine Idleness Grows—Lake and Tide Movement Declines—Railroad Coal the Main Bolster—Prices Soft.

FAIRMONT

Production was on a much lower level in northern West Virginia during the week ended July 9. The difference in the output amounted to about 75,000 tons, mine idleness jumping with the poor demand and the holiday on July 4. Tidewater markets reflected a sharp decrease, following the settlement of the British strike. Lake shipments have dropped off materially and it is now difficult to dispose of any coal. A large majority of the tonnage moving is for railroad fuel purposes.

NORTHERN PANHANDLE

Except for an occasional small order for screened coal there is virtually no demand on a spot basis and production has declined further. Prices are so low generally as to preclude acceptance of orders. A little coal was moving to the Lake and Western markets but toward the end of the week Lake shipments were being curtailed.

Middle Western

INDIANA

Few Mines in Operation and Those but Half Time—Market Dead.

Mines throughout Indiana continue to close down and the depression in the mining districts grows more evident each day. No mines in the district are operating at full time and a majority of the mines have been completely closed down. Thousands of men are out of employment, many of whom have been without work for several months.

Appeals have been made to the public to buy coal now before the demand grows greater than production during the winter months. Domestic users have complied with this request to some extent but the industrial consumers have not.

Of approximately 219 mines in the state only 97 are actually working and these 97 are operating 50 per cent of full time. The situation has not changed much in the past week, and unless the market opens the majority of these mines will be compelled to curtail operations. The mines are operating on an average of from three to four days a week and are producing coal which was contracted for last summer.

WESTERN KENTUCKY

Operators Avoid Over-Production—Prices Well Maintained.

The majority of operators are playing safe in that they are making no effort to mine coal at give-away prices. There are a few who are cutting prices somewhat, but as a whole the field is sticking together, and working on the basis of making a profit on coal mined.

Records for the field show that last week's averages were 13c. a ton higher on prepared than for the previous week, and 15c. higher on mine run, but screenings show a loss of 10c.

Western Kentucky screens down to pea and slack, and fine screenings are in demand as a result of many concerns not being able to handle fine coal that contains nut sizes.

As a result of retailers being stocked up on prepared sizes, and domestic consumers taking very little coal, production of screenings is much below normal, which is aiding materially in maintaining prices.

SOUTHERN ILLINOIS

Conditions Show No Improvement—Steam Sizes a Serious Menace to Future Working Time—Railroad Tonnage Light—Serious Break in Prices.

The Carterville situation in Williamson and Franklin County shows no improvement in the matter of tonnage handled. Railroads are not taking the tonnage that was expected although the Burlington is reported as having bought 250,000 tons for storage.

Screenings are an absolute menace to the situation. There is no market

and several operators have stored all that they can afford to in the vicinity of the mines and some of these are causing trouble from spontaneous combustion. This is especially so in Franklin County. The "Big Six" are trying to hold to the circular price of \$4.05 for domestic sizes. Mine run and screening prices are shot. The balance of the association members are trying to run in competition with prices made by the independents. At least, it would appear so from the quotations made.

Duquoin field conditions are extremely bad. Some mines get one day a week, some three days, with several of them idle, and railroad tonnage light.

The Mt. Olive situation shows little change. Steam moves only on contract. There is no change in prices, which are a minimum of \$3 for domestic in the St. Louis territory and \$3.25@ \$3.50 outside.

The Standard field is standing still. Prices are as low as they can go and working time cannot be much worse without shutting down altogether. The screenings in this field are causing some concern. There is no market at any price, but even if screenings were moving the demand for other sizes would not justify working.

MIDWEST REVIEW

All Markets Move Sluggish, but Inquiries Are Increasing—Labor Situation Causes Apprehension—Screenings Stronger with Poor Domestic Demand.

All factors which go to make up a good market appear to be conspiring against the coal industry. The farmers are not buying, industries are running in a hand-to-mouth manner, if at all, and the weather, even for this time of the year, has been unseasonably hot and humid, having the most depressing effect even on those ordinarily most buoyant. The Northwest docks are crowded with coal, and have no more room for additional cargoes. This will prove to be a distinct blow to the mines in southeastern Kentucky and West Virginia, which have been operating in a fairly satisfactory way since early May. Dock operators have cut prices down to the bone, but in spite of this, the public remains uninterested. In the towns and cities of the Middle West the situation is about the same as the public has the idea firmly fixed in its mind that coal is going to be cheaper. So far no argument has been found which will dislodge this idea.

The demand for steam coal has not picked up although prices on screenings have strengthened to some extent, principally on account of the fact that lump coal is so hard to move, and there has been no accumulation of screenings at the mines as many of the mines have been idle. Running time of factories throughout the territory is not showing any inclination toward improvement although immediate prospects are brighter than they have been for some time. Inquiries on steam coal are coming in to the central markets in

increased volume, and if these inquiries are any indication of the situation, a great many of the industries are planning on opening up within the next few weeks.

Operators and wholesalers are beginning to give serious thought to the labor problem. Practically all industries have taken a reduction in wages, and it is felt by some that the coal industry must keep in line with the others. Some of the non-union fields have already made reductions, and these put the Eastern non-union fields in a position to compete very seriously with the Middle West, consequently, the latter coal fields must sustain a serious loss, or else will have to make some sort of an agreement with the United Mine Workers which will bring about a reduction in the cost of producing coal at the mines.

A very significant statement appeared in the Chicago press a few days ago made by Charles S. Dodge, treasurer of the Illinois and Wisconsin Coal Dealers' Association. Mr. Dodge makes no bones about predicting a very serious coal strike next April if not before: "There must be a wage cut from the war-time peak. The other alternative is unemployment. The mine operators are determined to cut and the unions say they will accept no reductions. The only outcome of such a situation possible is a strike. It will probably be the bitterest fought of any in the history of the country." The basis of Mr. Dodge's argument is that the only way to meet competition is through a wage cut.

Middle Appalachian

LOW-VOLATILE FIELDS

Foreign Tonnage Declining — Some Mines Close Indefinitely—Holiday Production Losses Smaller Than Anticipated.

NEW RIVER AND GULF

New River production declined further, due to the July 4 holiday and the existing depression. Many mines have closed down since the Fourth for an indefinite period. Curtailment of foreign shipments has removed the last mainstay of production and prices have softened.

In the Gulf region dullness was also more pronounced, and there was a slim output during the week ended July 9. General conditions are about the same as those existing in the New River field.

POCAHONTAS AND TUG RIVER

Despite the general apathetic market, Pocahontas production was fairly well maintained, although the holiday tended to pull down the output. Slack was in very poor demand and was not selling much above \$2, prepared coal ranged \$4.50@ \$5 and mine run brought around \$2.50.

Tug River production was slightly reduced, although taking general market conditions into consideration, the out-

put was larger than anticipated. Few spot orders are being placed and almost no new contracts have materialized. Much of the output went to Tide although Lake shipments are still holding. Slack coal was extremely hard to move.

HIGH-VOLATILE FIELDS

Holiday Production Losses Insignificant—Demand Unimproved—Lake Tonnage Less—More Mines Idle.

KANAWHA

Depression was much in evidence during the week ended July 9, although more than the usual tonnage was produced on July 4, probably because miners were impressed by the fact that opportunities to work were becoming rather rare. The output was not above 30 or 40 per cent. Spot closings were few because of the low prices offered.

LOGAN AND THACKER

Neither the holiday nor market depression prevented a good production in the Logan region. Operations, however, were confined to a few mines and much coal was going for storage. More inquiries were in effect but prices offering were too low for producers consideration; \$2@ \$2.50 on prepared sizes, \$1.75 for mine run and not more than 75c. for slack.

Williamson "no market" losses were not far short of 90,000 tons with an output of about 50 per cent. But little spot business was in sight.

NORTHEASTERN KENTUCKY

Production remains at a low ebb because of the general absence of any market. Screenings could scarcely be moved at any price which precluded the acceptance of any but meager domestic orders.

VIRGINIA

As there was little or no spot market, mines were limping along on contract orders with about 60 per cent production. Few of the smaller mines were working as the state of the market precluded a resumption of operations.

West

UTAH

Storage Prices Off—Demand Listless—Consumers Await Still Cheaper Coal.

There is practically no change in the coal situation. Consumers are convinced that prices will yet come down and nothing but an elaborate campaign on the part of some disinterested authority would convince them that they will remain where they are.

One of the largest retail concerns in Salt Lake City is stocking up but many of the smaller agencies are not in a position to do so. The dealers have raised the cash price to \$10 again for lump and \$9.50 for nut, the time limit on the special storage price being up. The reduction made practically no difference.



MINE And COMPANY NEWS



ALABAMA

With a view to placing a check on prices charged consumers for domestic coal in Alabama, Governor Kilby has been supplied with data showing the cost to the dealers of the various grades, f.o.b. mines, and is assembling information on freight rates, cost of retail handling, to which will be added a fair margin of profit, and a schedule of prices which consumers should pay for their coal will be published for the information of the public in the near future.

INDIANA

Negotiations to consolidate the **Olyphant-Johnson Coal Co.**, controlling ten mines in Indiana and Illinois, and the **Rowland Power Collieries Co.**, controlling thirteen mines in Indiana, have failed. Independent mining on a large scale has prevailed in this vicinity for some time. Organization of a large company, mining interests say, would dominate the field. George G. Rowland, president of the collieries company, a Chicago man, is said to have offered \$1,000,000 in cash and millions of dollars in securities for a controlling interest in the Olyphant-Johnson mines.

The **Enterprise Coal Mining Co.** has been organized at Sullivan, with a capital stock of \$50,000. The company will do a general mining business and the organizers are Robert Pickett, Sr., Robert Bonham, Arthur Ladson, Allen Zawyer, Axel Olsen, Frank Davidson, Mart Crooks, Thomas Scully and R. B. Squires.

The **Bright Gem Mining Co.**, at Brazil, has been incorporated under Indiana laws. The company has been organized by A. L. Allais, A. H. Stark, Edward Allais, Jr., T. F. Grand and Edward Allais, Sr., and has a capital stock of \$75,000.

The **Atomized Products Co.**, of Evansville, a company which makes a fuel out of coal dust, has changed its name to the **Atomized Products Corporation**.

KENTUCKY

The Newport Board of Education has let the coal contract for the season's deliveries. This was taken by the **Newport Coal Co.** at \$6 a ton for bituminous mine run. The coal is to be stocked in July and August.

The **Berger Coal Mining Co.**, has secured leases on the Cumberland River and will put in a new operation. The company has been chartered with a capital of \$150,000, by Guy Darst and C. E. Ralston, of Harlan; and C. H. Jarnagin, of Knoxville.

The **Stevens Branch Coal Co.**, Prestonburg, a new \$50,000 company, of which S. C. Ferguson is manager, is planning to produce 1,500 tons daily, when new operations are in.

The **Kentwood Coal Co.**, Hazard, has let contracts to Charles Wright for erection of twenty-one cottages, for miners homes.

The **Carrs Fork Coal Co.**, Hazard, H. E. Bulloch, manager, has increased its capital to \$500,000 and plans enlarged operations.

The **Eden Coal Co.**, G. D. Ison, Whitesburg, has recently increased its capital from \$60,000 to \$100,000.

I. Frulinger, president of a new \$250,000 coal company at Island, is planning development of 1,700 acres of coal land.

The **Burgess Coal Co.**, Louisa, has been chartered with a capital of \$12,000, by M. D. Daniel, J. H. Burgess and Elizabeth J. Daniel.

NEW YORK

Beginning work on the **Shallmar Coal Classification**, W. A. Marshall & Co. has sent men throughout the coal fields to take samples, so that all mines may be properly classified. Wesley Lieb, of the Marshall organization, is in charge of this work. All mines will be classified according to their analyses.

M. G. Siener announces the organization of the **Cleveland & Buffalo Coal Co.**, of which he will be president and general manager, with offices in Buffalo. He has been for some years vice-president and Buffalo agent of the P. O. McIntire Coal Co. of Cleveland. Former trade relations with the company will continue.

OHIO

Roy R. Smith, proprietor of the **North Columbus Ice & Coal Co.**, has purchased the old plant of the **Hosier-Columbus Breweries Co.**, Columbus, which will be converted into an ice manufacturing plant. It is the plan to open a large retail coal yard on the same property.

A new jobbing concern has been organized under the name of the **Gibraltar Coal & Coke Co.**, with offices in Columbus. The concern is a corporation, with F. S. Davidson, formerly sales manager of the **Packard Coal Mining Co.**, as president, and J. W. Bresnahan, treasurer.

Fairmont people interested in the **Belmont and Fairmont Coal Co.**, which will operate near Flushing in Belmont County, state that favorable progress is being made in developing the company's property and that a side-track is now being installed. The estimated production of the new mines will be about 500 tons a day.

The **Columbus Board of Purchase** has rejected all bids recently opened for approximately 11,000 tons of Hocking nut, pea and slack for various city departments. The board will continue to purchase on the open market.

PENNSYLVANIA

The **Shannopin Coal Co.** is being organized by Robert N. Miller, Wilburt S. McKee and Hiram Hill, to operate coal mines in the Pennsylvania fields. Application will be made for a state charter. Wilson & Evans, 832 Oliver Building, Pittsburgh, represent the company.

The six weeks' summer course in mining at State College opened on June 23 and the indications are that the enrollment will be exceedingly large. Representatives are attending the classes from Brownsville, Rockwood, South Fork, Portage, Cresson, Beaverdale, Barnesboro, Hastings, Osceola Mills, Winburne, Madera, Robertsdale, Dudley and other places.

T. Stanton Davis and E. M. Burns of Ebensburg and J. Edgar Long of Clarksburg, W. Va., members of the **Davis-Long Coal Co.**, of Ebensburg, were in Pittsburgh recently where they were defendants in an equity suit in the United States Court brought by Charles N. Blanchard of Binghamton, N. Y. The suit was brought against the coal firm to recover money which he paid on the purchase of the property and also for the cancellation of the contract. The trial was completed late in the week and attorneys will argue the case this fall.

Work is now in progress for thirty-seven additional houses to be built for the **Ebensburg Coal Co.**, at Revloc, Cambria County. Strayer & Co., of Johnstown has the contract for the excavations and foundations. The buildings will be rushed to completion as they are needed for the miners.

UTAH

Judge Iverson of Salt Lake City in the case of the U. S. Railroad Administration vs. the **Spring Canyon Coal Co.**, has decided in favor of the coal company. There were two complaints and the court decided in both instances that the damage in question was not due to any negligence on the part of the company's employees.

Leading operators are enthusiastic over the proposed power and light plant which would consume from 75,000 to 100,000 tons of slack per year, for which a market has now to be found. The plant, if it is erected, will in all probability be placed in Carbon County where there are a dozen companies operating at the present time.

A. J. Mayes has acquired title under a lease to 2,094 acres of coal land in Township 16 south and ranges 7 and 8 east. The lease was granted through the local U. S. land office, stipulating that Mr. Mayes must spend a total of one-half million dollars in developing the property within the next three years, after which time the government will receive a royalty of 10c. a ton on all coal mined. This makes a total of five leases sold at the Salt Lake City land office since the coal leasing bill became a law last year.

WEST VIRGINIA

Favorable action was taken by the Circuit Court of Kanawha upon the application for the appointment of a receiver for the **French Collieries Co.**, operating in Clay County. Manager French of the property was appointed receiver by the court.

Judgment in favor of the plaintiff for \$15,960.32 was rendered in the Circuit Court of Kanawha County in connection with the suit of the **Old Dominion Coal Corporation** against the **Fort Dearborn Coal Co.**, which was instituted a short time ago. The defendant filed a demurrer to the declaration of the plaintiff but this the court overruled, awarding the judgment in the amount named.

The **Wyoming Coal Sales Co.**, through Alex Vowles, sales manager has perfected arrangements for the opening of offices in Charleston. The organization is the sales company for the mining interests of J. C. Sullivan in Wyoming, McDowell and Pike counties.

Stockholders of the **Federal Colliery Co.** of Huntington, having authorized a dissolution of the company, this concern has surrendered its charter and discontinued business. H. C. Duncan was the president of the company.

In connection with the suit of Kenna-Gentry against the **Cora Coal & Coke Co.** for \$25,000, claimed as the amount due him for engineering the sale of the mine and properties of the defendant company operating in Logan County, to the **Standard Island Creek Coal Co.**, of Cleveland, a jury in the Cabell Circuit Court returned a verdict in favor of the defendant company. The property of the defendant company was located between Logan and Holden.

The **Connellsville By-Products Coal Co.**, of Morgantown, has contracted for a new steel tippie at Scott's Run. The equipment will consist of an incline apron conveyor, together with the necessary machinery for proper delivery of cars in the mine bottom to the dump and feeder hopper and the equipment in the tippie will consist of Marcus screens, together with the necessary loading chutes.

The **Carter Coal Co.** of Coalwood, has ordered a set of Nolan automatic cagers, to be used at the shaft bottom. This company is making extensive mine improvements.

BRITISH COLUMBIA

An amendment to the "Coal Mines Regulation Act" was passed at the last session of the British Columbia Legislature providing that "no lamp or light other than a locked safety-lamp of a pattern approved by the Minister of Mines shall be allowed or used underground in any mine. Operators have been provided with a list of "approved" safety-lamps. There are included in this the electric lamp manufactured by the Edison Storage Battery Co.; the Concordia portable electric lamp, manufactured by the Concordia Electric Co., Pittsburgh; the Wico portable electric mine-lamp, manufactured by the Witherbee Igniter Co., Springfield, Mass.; the Pioneer portable electric mine lamp, manufactured by the Pioneer Electric Mine Lamp Co., Philadelphia, Pa.; the Wheat portable electric mine lamp, manufactured by the Hoehler Manufacturing Co., Marlboro, Mass.; and five types of flame safety-lamps.

Traffic News

The I. C. C. has decided that the rate on slack coal from Deering to Caney, Kan., during Federal control was unreasonable, and has awarded the **Weir Smelting Co.**, which complained against the rate, reparation on certain shipments.

That damages amounting to not less than \$10,000,000 to industrial plants along the right of way of the **Indiana Coal Railroad**, now operated under lease by the C. & E. I. railroad, will result if abandonment of this road is permitted by the I. C. C., was asserted recently by R. B. Coapstick, traffic manager and commerce attorney of the Indiana State Chamber of Commerce. "There is no necessity whatever for the abandonment of this road," said Mr. Coapstick. "The revenues now accruing from traffic handled over the road amount to about \$2,000,000 annually, more than sufficient to pay operating costs and a reasonable net return. However, much of the traffic that should go over this road has lately been diverted over the main road of the C. & E. I. to Chicago, which has lessened traffic over the division. The road, which the petition now before the commission seeks to abandon, has a mileage of about 175, including the main division from Lacrosse to Brazil and the branch from Percy Junction to Mokena, Ill."

The **Milwaukee Western Fuel Co.**, has complained to the I. C. C. against unreasonable rates on coal from points in Kentucky to the Hocking Valley and B. & O. docks at Toledo, for trans-shipment by boats for transportation beyond.

Jesse E. Isgrigg and others of Clinton, Ind., complain against unreasonable rates on coal from mines in the Clinton district to Clinton.

Moore & Moore, Inc., Mason City, Iowa, complain against unreasonable rates on coal from Cincinnati, Iowa, to St. Benedict, Iowa.

The **Illinois Coal Traffic Bureau of Chicago** has complained against unreasonable rates on coal from Fulton-Peoria, northern Illinois, Danville, Centralia, Duquoin and southern Illinois groups to Council Bluffs, Iowa, Omaha, Nebraska and South Omaha.

The **Willard Coal Co.**, Kentucky, complains against unreasonable rates on coal from Willard to central freight association territory during and since Federal control.

In the case of the **Clinton Paving Brick Co.**, an I. C. C. examiner recommends that rates during Federal control on intrastate shipments of bituminous coal from mines in the Clinton district to Clinton and Logan, Ind., were unreasonable.

In the complaint of **A. W. Hillebrand Co.**, an examiner recommends that the rate on bituminous coal from Casselman, Md., to St. George, Staten Island, N. Y., is unreasonable; that rates on bituminous from points on the B. & O. in the Meyersdale, Pa., district to an industry on the Erie R.R. at Weehawken, N. J., are not unreasonable, and that charges on shipments of bituminous from points on the Pennsylvania in Pennsylvania to an industry on the Erie at Weehawken, N. J., were in excess of those lawfully applicable.

The **J. L. Mott Co. and others** of Trenton, N. J., have complained against unreasonable rates on coal from points in West Virginia to Trenton.

Hearing was given by the I. C. C. July 15, at Galesburg, Ill., on the application of railroads to continue rates on bituminous coal from Breeds, Ill., to St. Paul, which are lower than the rates on like traffic from Rawl, Ill., and other intermediate points.

Personals

A visitor in Cincinnati late in June was **W. R. J. Zimmerman**, president of the Old Dominion Coal Co. with headquarters in Charleston, W. Va.

Alex Vowles, sales manager of the Wyoming Coal Sales Co. was in Charleston recently making arrangements for opening an office in that city.

After spending several weeks at Battle Creek, Mich., **Charles Land**, manager of the Logan-Eagle Coal Co. at Stowe, W. Va. has returned home.

A recent visitor in the Logan field was **A. H. Land**, head of the Dickinson Fuel Co., of Charleston and also treasurer of the West Virginia Coal Association.

Harry C. Drum, Fairmont coal broker, was a visitor in Eastern markets recently.

Alex R. Watson, of the C. L. & W. Coal Co., was a visitor in the Philadelphia market during the opening days of July.

H. D. Everett, manager of sales of the Smokeless Fuel Co., spent several days in the New York market recently.

Operators and others prominent in the coal trade of Cleveland taking heed of the old adage that "All work and no play makes Jack a dull boy" have perfected arrangements for the second annual golf tournament of Cleveland coal men, the maiden event being held at the Mayfield Club, June 30. Other games are to follow every two weeks during the summer on the various courses. The following are team captains in the tournament: **S. H. Robbins**, president, Youghiogeny & Ohio Coal Co.; **A. A. Augustus**, president, Cambridge Collieries Co.; **George Enos**, president, George A. Enos Coal Co.; **J. L. Forepaugh**, Northwestern Fuel Co.; **Joseph Micheltree**, M. A. Hanna & Co. **D. F. Hurd**, secretary of the Pittsburgh Vein Operators' Association of Ohio, is the official handicapper and manager of events.

Association Activities

Tidewater Coal Exchange, Inc.

At the quarterly meeting of the Board of Directors of the exchange, held in New York City on July 6, Commissioner R. A. C. Magruder, who is also secretary-treasurer of the exchange, submitted the financial and tonnage reports for the first fiscal year ended April 30, showing the exchange had dumped 10,546,028 tons of bituminous coal over the 14 piers operating through the exchange at New York, Philadelphia and Baltimore, as compared with 11,820,318 tons dumped outside the exchange, the tonnage being handled for the year at a cost of 2c. per ton.

The following were elected to fill vacancies existing on the Board of Directors: **T. M. Dodson**, Bethlehem, representing the Upper Potomac Coal Association, Inc.; **A. Lisle White**, Clarksburg, W. Va., representing the Northern West Virginia Coal Operators' Association; **J. P. Cameron**, Pittsburgh, representing the Pittsburgh District, and **N. C. Ashcom**, of B. Nicoll & Co., of New York.

The proposed revisions in the rules and regulations of the exchange were discussed but adoption was postponed until July 20.

Immediately following the meeting of the Board of Directors a joint meeting of the Executive Committee and the Railroad Advisory Committee was held at which the appointments of **W. B. Walton**, as deputy commissioner at Philadelphia, and **N. H. Whalen**, as deputy commissioner at Baltimore were confirmed. The appointments which were made by Commissioner Magruder, became effective July 1.

Mr. Walton succeeds **F. E. Clark** who was appointed assistant commissioner, and **Mr. Whalen** succeeds **J. A. Biddison**, who resigned.

Northern West Virginia Coal Operators' Association

Two days were given over to the discussion and settlement of dead-work conditions and general grievances in northern West Virginia fields by the joint board of operators and miners whose territory is embraced within that covered by the association, the joint board being in session on June 21 and 22. One of the first questions taken up was that in connection with dead work at the plant of the Century Coal Co. at Century, W. Va. After going into this matter thoroughly the board decided that the question was one for settlement by the management of the company and the local union, the belief being expressed that unless they were able to adjust matters, it might be considered desirable to let conditions remain as they are now. A number of cases involving the discharge of employees were passed upon by the board. The decision of Commissioner **E. S. McCullough** made in January, permits coal companies to combine jobs in cases where the mine is working on part time or where the slackness of work is such that the full force of the mine is not needed.

There were present at the meeting the following: **C. H. Tarleton**, Fairmont; **Everett Drennen**, Elkins; **A. Lisle White**, of Clarksburg, all of whom represented the operators; **Frank Keeney**, Charleston, president of District 17; **J. S. Fornasch**, Grafton; **Ralph Alelio** and **Frank McCartney** representing the miners.

National Coal Association

On the Cost Accounting Committee of the association are:

Brewster, T. T. (chairman), general manager, Mt. Olive & Staunton Coal Co., St. Louis, Mo.

Barker, G. H., vice-president, Maynard Coal Co., Columbus, Ohio.

Barnum, Walter, treasurer, Pacific Coast Co., 50 Church St., New York City.

Heaps, George, Jr., general manager, Boone Coal Co., 601 Polk Bldg., Des Moines, Iowa.

Drennen, E., vice-president and general manager, West Virginia Coal & Coke Co., Elkins, W. Va.

Ramsay, Erskine, first vice-president, Pratt Consolidated Coal Co., Birmingham, Ala.

Randall, Robert, general manager, Consolidated Coal Co. of Saginaw, Saginaw, Mich.

Sampson, W. J., president, Witch Hazel Coal Co., Youngstown, Ohio.

Reed, W. B., secretary, National Coal Association, Washington, D. C.

Honnold, F. C., secretary, Coal Operators' Association, 2017 Fisher Bldg., Chicago, Ill.

Huff, W. H., president, Victor-American Fuel Co., Denver, Col.

Hornberger, J. B. L., comptroller, Pittsburgh Coal Co., Pittsburgh, Pa.

McKinney, W. D., secretary, Southern Ohio Coal Exchange, Columbus, Ohio.

Norris, R. V., 524 Second Natl. Bank Bldg., Wilkes-Barre, Pa.

Allport, J. H., Barnesboro, Pa.

Johnson, W. L. A., secretary, Southwestern Interstate Coal Operators' Association, 519 Keith & Perry Bldg., Kansas City, Mo.

Industrial News

Boston, Mass.—The office of **Percy Hellner & Son** is now located in the Congress Building, Water St. and Post Office Square.

Buffalo, N. Y.—**W. C. Blodgett**, for several years local coal agent of **Dickson & Eddy**, of New York, and who covered a wide territory from Oswego to the upper lakes for that firm, has reopened an office at 406 Marine Trust Bldg., after having been out of business a year or more, and will cover his old territory in the same interest again.

Charleston, W. Va.—The Automatic Reclosing Circuit Breaker Co. of Columbus is opening an office at 110 Hale St. **Donald J. Baker** is in charge of this office.

New York, N. Y.—The local office of the **Morrison & Rismann Co.**, jobbers in rails and track accessories, has been moved to 25 Cortlandt St.; telephone Cortlandt 4405.

Coming Meetings

The **Huntington Coal and Industrial Exposition** will be held in the Chamber of Commerce Building, Huntington, W. Va., Sept. 19 to 24 incl. Chairman of committee, **Thomas A. Palmer**, Huntington Chamber of Commerce, Huntington.

American Institute of Mining and Metallurgical Engineers will meet at Wilkes-Barre, Pa., Sept. 12 to 17. Secretary **F. F. Sharpless**, 29 West 39th St., New York City.

National Association of Cost Accountants will hold its annual convention at Cleveland, Ohio, Sept. 14, 15 and 16. Secretary, **S. C. McLeod**, 130 West 42d St., New York.

The **American Mining Congress and National Exposition of Mines and Mining Equipment**. The twenty-fourth annual convention on Oct. 17 to 22 at the Coliseum, Chicago, Ill. Assistant secretary, **John T. Burns**, Congress Hotel, Chicago, Ill.

The **West Virginia-Kentucky Association of Mine, Mechanical, and Electrical Engineers** will hold its annual meeting at Huntington, W. Va., on Sept. 20 to 23. Secretary-treasurer, **Herbert Smith**, Huntington, W. Va.

The following first-aid meets will be held during August: The **Davis Coal & Coke Co.**, first-aid and mine rescue meet at Thomas, W. Va., on the 3d. The **State of Iowa** will hold its annual first-aid and mine-rescue meet on the 6th at Albion. At **Birmingham, Ala.**, state first-aid and mine-rescue meet on the 6th. On the 20th a state first-aid and mine-rescue meet will be held at **Charleston, W. Va.** Under the auspices of the **Colorado Fuel & Iron Co.** a local first-aid and mine-rescue meet will be held at **Pueblo, Col.**, on the 20th.